



डीएमआरसी अकादमी
DMRC Academy



QUALIFICATION FILE

Junior Engineer – Signal (Metro Rail)

☒ 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: 4.5

Submitted by:

DMRC Academy

East approach Road, Delhi Metro Train Depot

Shastri Park, Delhi-110053

Table of Contents

Section 1: Basic Details	3
Section 2: Module Summary	5
NOS/s of Qualifications	5
Mandatory NOS/s:	5
Assessment - Minimum Qualifying Percentage	5
Section 3: Training Related	6
Section 4: Assessment Related	6
Section 5: Evidence of the need for the Qualification	7
Section 6: Annexure & Supporting Documents Check List	7
Annexure 1: Evidence of Level	8
Annexure 2: Tools and Equipment (Lab Set-Up)	14
Annexure 3: Industry Validations Summary	17
Annexure 4: Training & Employment Details	17
Annexure 5: Blended Learning	18
Annexure 6: Detailed Assessment Criteria	18
Annexure 7: Assessment Strategy	26
Annexure 8: Acronym and Glossary	28

Section 1: Basic Details

1.	Qualification Name	Junior Engineer – Signal (Metro Rail)							
2.	Sector/s	Logistics							
3.	Type of Qualification: ☒ New ☐ Revised ☐ Has Electives/Options ☐ OEM	NQR Code & version of existing/previous qualification: NA	Qualification Name of existing/previous version: NA						
4.	a. OEM Name b. Qualification Name (Wherever applicable)	NA Junior Engineer – Signal (Metro Rail)							
5.	National Qualification Register (NQR) Code &Version (Will be issued after NSQC approval)	QG-4.5-TW-03512-2025-V1-DMRCA & v1.0	6. NCrf/NSQF Level: 4.5						
7.	Award (Certificate/Diploma/Advance Diploma/ Any Other) (Wherever applicable specify multiple entry/exits also & provide details in annexure)	Certificate							
8.	Brief Description of the Qualification	A Junior Engineer - Signal (Metro Rail) oversees metro rail signalling systems' installation, maintenance, and troubleshooting to ensure safe and efficient train operations. The individual's responsibilities include overseeing point machines, track circuits, interlocking systems, and Platform Screen Doors (PSDs) and coordinating with telecom and power supply teams. It also involves monitoring Automatic Train Protection (ATP) and Automatic Train Supervision (ATS) systems, ensuring compliance with safety protocols, and conducting regular maintenance and emergency response drills.							
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>3 years Engineering Diploma*/equivalent</td> <td></td> </tr> </tbody> </table> *Diploma in Electronics, Computer Engg., Information Technology, Electronics & Communications, Electronics & Communications Industry Integrated, Electrical & Electronics, Electronics / Microprocessor, Electronics & Telecommunications, Instrumentation Technology, Electronics and Instrumentation Engg. or in relevant field b. Age: 18 years		S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)	1.	3 years Engineering Diploma*/equivalent	
S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)							
1.	3 years Engineering Diploma*/equivalent								
10.	Credits Assigned to this Qualification, Subject to Assessment (as per	17	11. Common Cost Norm Category (I/II/III) (wherever						

	National Credit Framework (NCrF))		applicable): 1																		
12.	Any Licensing requirements for Undertaking Training on This Qualification (wherever applicable)	NA																			
13.	Training Duration by Modes of Training Delivery (Specify Total Duration as per selected training delivery modes and as per requirement of the qualification)	☒ Offline ☐ Online ☐ Blended <table border="1"> <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>210</td><td>150</td><td>150</td><td>-</td><td>510</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)	210	150	150	-	510	Online					
Training Delivery Modes	Theory (Hours)	Practical (Hours)	OJT Mandatory (Hours)	OJT Recommended (Hours)	Total (Hours)																
Classroom (offline)	210	150	150	-	510																
Online																					
14.	Aligned to NCO/ISCO Code/s (if no code is available mention the same)	NCO-2015/2153.9900																			
15.	Progression path after attaining the qualification (Please show Professional and Academic progression)	Junior Engineer – Signal (Metro Rail) (L4.5) Engineer – Signal (Metro Rail) (L6.0) →																			
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: <i>Speech and Hearing Impairments</i>																			
19.	How Participation of Women will be Encouraged	Encouraging the participation of women for the role of Junior Engineer – Signal (MR) in Metro Railway can be achieved through various strategies aimed at promoting diversity, inclusivity, and gender equality. Training and skill development programs specifically tailored can be offered to female candidates interested in pursuing careers in these roles. By ensuring that the workplace culture within the metro railway system is safe, respectful, and inclusive, free from harassment or discrimination.																			
20.	Are Greening/ Environment Sustainability Aspects Covered (Specify the NOS/Module which covers it)	☒ Yes ☐ No																			
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 (In case of CS or MS, provide details of both Lead AB & Supporting ABs)	Name: Chandra Kishor Prasad Email: ckprasad@dmrc.org Website: https://dmra.delhimetrorail.com/ Contact No.: 99586 90650																			

23.	Final Approval Date by NSQC: 18-02-2025	24. Validity Duration: 3 Years post NSQC Approval	25. Next Review Date: 17-02-2028
-----	---	---	----------------------------------

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 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/NS QF 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.	Implement Metro Operations Training and Safety Procedures	DMR/LSC/N9 901, v1.0	Core	4.5	3	60	30	00	-	90	20	20	-	10	50	25
2.	Oversee the operation and maintenance of metro signalling and train control systems	DMR/LSC/N0 201, v1.0	Core	4.5	6	65	55	60	-	180	20	20	-	10	50	25
3.	Oversee the operation and maintenance of signalling and safety systems for rail operations	DMR/LSC/N0 202, v1.0	Core	4.5	7	55	65	90	-	210	20	20	-	10	50	25
4.	Employability Skills (30 Hours)	DGT/VSQ/N0 101, v1.0	Non-Core	2.0	1	30	-	-	-	30	20	30	-	-	50	25
Duration (in Hours) / Total Marks						17	210	150	150	510	80	90		30	200	

Assessment - Minimum Qualifying Percentage

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

Minimum Pass Percentage – Aggregate at qualification level: 60% (Every Trainee should score specified minimum aggregate passing percentage at qualification level to successfully clear the assessment.)

Minimum Pass Percentage – NOS/Module-wise: 60 % (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.	Trainer's Qualification and experience in the relevant sector (in years) <i>(as per NCVET guidelines)</i>	Educational Qualification: Graduate in Electrical/Electronics Engineering/ Signal Engineering. Industry & Training Experience: 2 years of industry experience in relevant field Certification: "Trainer" mapped to the Qualification Pack "MEP/Q2601" Minimum accepted score is 80% aggregate.
2.	Master Trainer's Qualification and experience in the relevant sector (in years) <i>(as per NCVET guidelines)</i>	Educational Qualification: Graduate in Electrical/Electronics Engineering/ Signal Engineering. Industry & Training Experience: 4 years of industry experience in relevant field Certification: "Master Trainer" mapped to the Qualification Pack "MEP/Q2602" Minimum accepted score is 90% aggregate
3.	Tools and Equipment Required for Training	☒ Yes ☐ No <i>(If "Yes", details to be provided in Annexure)</i>
4.	In Case of Revised Qualification, Details of Any Upskilling Required for Trainer	NA

Section 4: Assessment Related

1.	Assessor's Qualification and experience in relevant sector (in years) <i>(as per NCVET guidelines)</i>	Educational Qualification: Graduate in Electrical/Electronics Engineering/ Signal Engineering. Industry & Training Experience: 2 years of industry experience in relevant field Certification: "Assessor" mapped to the Qualification Pack "MEP/Q2701" Minimum accepted score is 80% aggregate.
2.	Proctor's Qualification and experience in relevant sector (in years) <i>(as per NCVET guidelines)</i>	Educational Qualification: Graduate in Electrical/Electronics Engineering/ Signal Engineering. Industry & Training Experience: 2 years of industry experience in relevant field Certification: "Assessor" mapped to the Qualification Pack "MEP/Q2701" Minimum accepted score is 80% aggregate.
3.	Lead Assessor's/Proctor's Qualification and experience in relevant sector (in years) <i>(as per NCVET guidelines)</i>	Educational Qualification: Graduate in Electrical/Electronics Engineering/ Signal Engineering. Industry & Training Experience: 4 years of industry experience in relevant field Certification: "Lead Assessor" mapped to the Qualification Pack "MEP/Q2702" Minimum accepted score is 90%

		aggregate.
4.	Assessment Mode (<i>Specify the assessment mode</i>)	Offline/ Online
5.	Tools and Equipment Required for Assessment	☒ Same as for training ☐ Yes ☐ No (<i>details to be provided in Annexure-if it is different for Assessment</i>)

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 2 years) (Yes/No): NA
3.	Government /Industry initiatives/ requirement (Yes/No): NA
4.	Number of Industry validation provided: -
5.	Estimated nos. of persons to be trained and employed: 1000
6.	Evidence of Concurrence/Consultation with Line Ministry/State Departments: <i>In Process</i> If “No”, why:

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 (<i>Mandatory</i>)	<i>Annexure 1</i>
2.	Annexure: List of tools and equipment relevant for qualification (<i>Mandatory, except in case of online course</i>)	<i>Annexure 2</i>
3.	Annexure: Detailed Assessment Criteria (<i>Mandatory</i>)	<i>Annexure 6</i>
4.	Annexure: Assessment Strategy (<i>Mandatory</i>)	<i>Annexure 7</i>
5.	Annexure: Blended Learning (<i>Mandatory, in case selected Mode of delivery is “Blended Learning”</i>)	<i>NA</i>
6.	Annexure: Multiple Entry-Exit Details (<i>Mandatory, in case qualification has multiple Entry-Exit</i>)	<i>NA</i>
7.	Annexure: Acronym and Glossary (<i>Optional</i>)	<i>Annexure 8</i>
8.	Supporting Document: Model Curriculum (<i>Mandatory – Public view</i>)	<i>Attached</i>

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

Annexure 1: 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	Oversee the Operation and Maintenance of Metro Signalling and Train Control Systems - Oversee the operation of metro signalling and train control systems to ensure safe and efficient train movement. - Monitor system performance and identify issues impacting train control. - Implement corrective actions to resolve faults and restore system functionality. - Coordinate with operations teams to manage system interruptions and minimize delays. Oversee the Operation and Maintenance of Signalling and Safety Systems for Rail Operations - Oversee the operation and maintenance of critical signalling, safety, and communication systems. - Use circuit diagrams to troubleshoot and repair faults in interlocking, axle counters, point machines, platform screen doors (PSDs), and Automatic Train Protection (ATP) systems. - Conduct preventive and corrective maintenance to ensure the safety and efficiency of rail operations. - Manage communication systems to ensure real-time coordination and safe train movement. Conduct System Fault Diagnosis and Troubleshooting	The Junior Engineer in Signal (MR) must possess specialized knowledge of metro signalling and train control systems, including their operation, maintenance, and troubleshooting. The role demands an understanding of complex signalling systems such as CBTC (Communication-Based Train Control), interlocking, Automatic Train Protection (ATP), and communication networks. Additionally, the Junior Engineer must be well-versed in safety regulations, operational standards, and signalling engineering principles. The Junior Engineer is also required to apply quality management, fault diagnosis, and time management principles in overseeing the performance and maintenance of signalling systems to ensure safe, efficient, and uninterrupted train movement. Hence, this role falls under Level 4.5.	4.5

	• Perform diagnostics to identify faults in signalling and safety systems. • Ensure rapid response and resolution of faults to minimize service disruption. • Collaborate with technical teams to implement solutions and restore optimal system operation. Manage System Integration and Communication • Coordinate the integration of various signalling and safety systems within the overall metro and rail network. • Maintain effective communication channels for efficient operation and response to emergencies. • Oversee the functionality of communication systems, ensuring real-time data flow and operational safety. Conduct Regular Inspections • Schedule and oversee routine inspections of signalling and safety systems. • Identify wear and potential failures during inspections, recommending necessary repairs. • Ensure that all equipment meets operational standards and complies with safety regulations. Oversee Training and Assessment for Signal Technicians • Develop and implement training programs to assess the competency of signal technicians. • Ensure technicians are proficient in operating and maintaining metro signalling and train control systems. • Provide feedback and guidance to improve performance and ensure safety standards are met. Provide Decision Support • Analyze system performance data to identify areas for improvement and efficiency. • Offer recommendations for enhancing signalling and safety systems.		
--	---	--	--

	Support decision-making processes by providing accurate system data and performance analysis.		
Professional and Technical Skills/ Expertise/ Professional Knowledge	- Know the principles of metro signalling and train control systems to ensure safe and efficient train movement. - Understand the functionality and components of various signalling systems, including interlocking, axle counters, and Automatic Train Protection (ATP). - Know how to monitor the performance of train control systems to ensure they operate within safety and efficiency parameters. - Understand how to identify and troubleshoot faults in metro signalling and train control systems to ensure minimal disruption to services. - Know how to interpret diagnostic data from signalling systems and make informed decisions to optimize their performance. - Understand the operational standards, safety regulations, and protocols for managing metro signalling and train control systems. - Know how to ensure the integrity of train control communication systems for smooth coordination between control rooms and trains. - Knowledge of relevant tools and technologies for monitoring, maintaining, and repairing signalling and train control systems. - Know how to implement preventive and corrective maintenance for metro signalling systems to enhance their reliability. - Understand the procedures for responding to system faults or failures, including troubleshooting and coordination with maintenance teams. - Know how to ensure safety and compliance with operational regulations related to metro signalling and train control systems. - Know the principles of operation, maintenance, and troubleshooting of signalling and safety systems	A Junior Engineer-Signal (MR) is required to demonstrate advanced technical skills in overseeing the operation, maintenance, and troubleshooting of metro signalling and train control systems. He/She must be proficient in utilizing specialized diagnostic tools and equipment to monitor the performance of signalling systems, ensuring safe and efficient train movement. Skills in project management, resource allocation, and team leadership are essential, as Junior Engineers coordinate tasks among various teams to address system faults, perform preventive maintenance, and optimize operational performance. Their expertise includes interpreting data from signalling systems and communication networks, ensuring system integrity, and addressing potential issues proactively. This role requires a deep understanding of interlocking systems, axle counters, and Automatic Train Protection (ATP) to maintain safety standards. Therefore, it falls under Level 4.5.	4.5

	essential for rail operations. • Understand how to interpret circuit diagrams and schematics to diagnose faults and maintain systems like interlocking and platform screen doors (PSDs). • Know how to manage the maintenance and functionality of Automatic Train Protection (ATP) systems and their role in ensuring train safety. • Understand the importance of conducting both preventive and corrective maintenance on critical rail safety systems to ensure operational continuity. • Know how to monitor and maintain communication systems essential for rail operations, ensuring safe and efficient train movement. • Understand the protocols for managing faults or failures in axle counters, point machines, and other key safety systems to minimize disruptions. • Knowledge of industry standards, safety regulations, and compliance requirements for rail safety systems. • Know how to conduct risk assessments related to signalling and safety systems to identify potential hazards and mitigate risks. • Understand the role of integrated signalling and safety systems in optimizing the flow of trains and ensuring operational safety. • Know the diagnostic tools and technologies used for troubleshooting and maintaining signalling and safety systems in rail operations. • Understand the procedures for coordinating with other departments, such as control rooms and maintenance teams, to resolve system issues efficiently.		
Employment Readiness & Entrepreneurship Skills & Mind-set/Professional Skill	• Select appropriate tools and techniques for the effective installation, operation, and maintenance of metro signalling and train control systems, ensuring system efficiency and safety. • Identify training needs for team members to enhance their technical skills in signalling and control systems, promoting adherence to safety protocols and industry	Individuals in this Junior Engineer-Signalling role are expected to demonstrate advanced technical skills in overseeing the operation, maintenance, and troubleshooting of metro signalling and train control systems. They should possess strong employability skills, including effective communication, leadership, and conflict resolution. The ability to interpret complex	4.5

	standards. • Oversee daily operations to ensure the seamless functioning of metro signalling and train control systems, focusing on safety, reliability, and operational performance. • Develop and implement maintenance schedules that prioritize preventative measures and address potential faults in metro signalling systems, ensuring system integrity and reducing downtime. • Evaluate performance metrics from diagnostic tools and SCADA systems to assess the efficiency of metro signalling systems and recommend improvements or optimizations. • Manage project timelines and resources effectively to ensure that tasks related to the operation and maintenance of signalling systems are completed on schedule and within budgetary constraints. • Foster collaboration among team members and stakeholders, ensuring effective communication and coordination for the smooth operation and troubleshooting of metro signalling systems. • Adapt to emerging technologies in metro signalling, train control, and SCADA operations, staying updated with industry advancements and integrating new technologies to enhance system performance. • Create and maintain comprehensive documentation of maintenance activities, system performance data, and compliance with industry regulations, ensuring clear records for future reference and audits. • Promote a culture of safety within the team, prioritizing adherence to safety standards and continuously improving practices to reduce risks and enhance operational effectiveness.	technical documentation and clearly convey critical information to team members and stakeholders is essential. Junior Engineers must also demonstrate problem-solving abilities, proactively addressing operational challenges and improving team collaboration. Their entrepreneurial mindset drives innovation in maintenance strategies, boosting operational efficiency while ensuring adherence to safety standards and meeting project deadlines. This role requires a high level of expertise in signalling systems, making it suitable for Level 4.5.	
Broad Learning Outcomes/Core Skill	• Carry out compliance with safety standards to ensure a safe working environment during metro signalling and train control system operations and maintenance. • Carry out effective troubleshooting and maintenance	At Level 4.5, Junior Engineer-Signal (MR) is expected to achieve broad learning outcomes that encompass foundational skills in technical literacy, problem-solving, and system analysis. They must effectively apply technical	4.5

	of signalling systems, including interlocking, axle counters, and Automatic Train Protection (ATP), to minimize system downtime and enhance operational reliability. • Carry out efficient operation and monitoring of metro signalling systems using diagnostic tools and SCADA interfaces to ensure safe and timely train movement. • Carry out team coordination and communication to ensure seamless collaboration between maintenance teams, control rooms, and other stakeholders for efficient operations. • Carry out project management tasks, including resource allocation, timeline management, and budget monitoring, to ensure timely completion of signalling maintenance and system upgrades.	principles to operate, monitor, and maintain metro signalling and train control systems, ensuring safe and efficient train movement. Proficiency in analytical thinking enables Junior Engineers to assess system performance using data from SCADA systems and diagnostic tools, and implement improvements based on the analysis. Additionally, they should possess strong documentation skills to maintain accurate records of maintenance activities, generate reports, and ensure compliance with regulatory and safety standards. Furthermore, effective communication and team coordination skills are critical to collaborate with maintenance teams, stakeholders, and control rooms to ensure smooth and efficient operations.	
Responsibility	• Metro signalling • Communication-Based Train Control (CBTC) System • Platform Screen Doors (PSD) and depot operations • Markers, indicators, overlap, isolation, and sighting distance • Schedule of Dimension (SoD) • Control table and interlocking systems • Overview of interlocking (IXL) systems • Point machine working, importance and general definition • Point and crossing • Signal Overview (Semaphore to CLS) • Track detection devices • Automatic Train Supervision (ATS) • Automatic Train Protection (ATP) • Working of relays • Maintenance precautions • Telecom and signalling interfacing • P-Way, traction, and E&M integration • Rolling stock and signalling system interface • Visits and practical exposure • Signalling system and circuit drawing	A Junior Engineer - Signal (MR) oversees metro rail signalling systems' installation, maintenance, and troubleshooting to ensure safe and efficient train operations. The individual's responsibilities include overseeing point machines, track circuits, interlocking systems, and Platform Screen Doors (PSDs) and coordinating with telecom and power supply teams. It also involves monitoring Automatic Train Protection (ATP) and Automatic Train Supervision (ATS) systems, ensuring compliance with safety protocols, and conducting regular maintenance and emergency response drills.	4.5

	- Measuring tools and PSD - Interlocking (IXL) systems - Signals and signal maintenance - Point machines - ATS and track access - ATP equipment - Power supply and CCTV system - Radio communication and route table		
--	---	--	--

Annexure 2: Tools and Equipment (Lab Set-Up)

List of Tools and Equipment

Batch Size: 30

S. No.	Tool / Equipment Name	Specification	Quantity for specified Batch size
1.	Digital Multimeter	Nos.	1
2.	Rail Current Meter	Nos.	1
3.	Optical Source Meter/Power Meter	Nos.	1
4.	Megger	Nos.	1
5.	Earth Resistance Tester	Nos.	1
6.	Shunt Box	Nos.	1
7.	Point Obstruction Gauge	Nos.	1
8.	Filler Gauge	Set	1
9.	Tapper Gauge	Set	1
10.	Measuring Scale/Steel Rule-2Ft	Nos.	1
11.	Measuring Tape	Nos.	1
12.	Network Cable Tester	Nos.	1
13.	Spirit Level	Nos.	1
14.	Clamp Meter	Nos.	1
15.	Screw Driver Set	Set	1
16.	Non-Metallic (Antistatic) Screw Driver	Nos.	1
17.	Allen Key Set	Set	1
18.	Alliener	Nos.	1
19.	Nose Plier	Nos.	1
20.	Combination Plier	Nos.	1
21.	Open End Spanner	Nos.	1
22.	Tubular Spanner	Nos.	1
23.	Adjustable Spanner	Nos.	1
24.	Ring Spanner	Nos.	1

25.	Ratchet Set (Socket Wrench Set)	Set	1
26.	Torque Wrench	Nos.	1
27.	Ball Pin Hammer	Nos.	1
28.	Plastic Mallet Hammer	Nos.	1
29.	Flat File	Nos.	1
30.	Half Round File	Nos.	1
31.	Tommy Bar	Nos.	1
32.	Crow Bar	Nos.	1
33.	Head Mounted Torch	Nos.	1
34.	Antistatic Wrist Band	Nos.	1
35.	Hi-Visibility Jacket	Nos.	1
36.	Safety Belt	Nos.	1
37.	Safety Gloves	Pair	1
38.	Insulation Tape	Roll	1
39.	Wire Cutter	Nos.	1
40.	Industrial Knife	Nos.	1
41.	Wire Striper	Nos.	1
42.	Twizer	Nos.	1
43.	Hexa With Blade	Nos.	1
44.	Oil Cane	Nos.	1
45.	Cold Chisel	Nos.	1
46.	Antistatic Brush	Nos.	1
47.	Hand Grease Gun	Nos.	1
48.	Dummy Wheel	Nos.	1
49.	Soldering Iron	Nos.	1
50.	Cable Tie	Pack	1
51.	Tool Bag	Nos.	1
52.	T-Handle for Axle Counter	Nos.	1

Classroom Aids

The aids required to conduct sessions in the classroom are:

1. Whiteboard
2. Projector
3. Computer/Laptop
4. Chairs
5. Tables
6. Whiteboard marker
7. Duster

Annexure 3: 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.							
2.							

Annexure 4: 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	200	75	10	5	5	5
2026	300	100	15	10	10	10
2027	500	200	25	10	10	10

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

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.
- 2.

Content availability for previous versions of qualifications:

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

Languages in which Content is available:

Annexure 5: 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	☐ Theory/ Lectures - Imparting theoretical and conceptual knowledge	Classroom Training through PPTs	60:40
2	☐ Imparting Soft Skills, Life Skills, and Employability Skills /Mentorship to Learners	Classroom Training through PPTs	60:40
3	☐ Showing Practical Demonstrations to the learners	Practical demonstrations at Metro Stations	60:40
4	☐ Imparting Practical Hands-on Skills/ Lab Work/ workshop/ shop floor training	Practical demonstrations & OJT at Metro Stations	60:40
5	☐ Tutorials/ Assignments/ Drill/ Practice	Drills / Practice at DMRC Academy & Metro Stations	60:40
6	☐ Proctored Monitoring/ Assessment/ Evaluation/ Examinations	Online Examination in DMRC Academy Computer Lab	60:40
7	☐ On the Job Training (OJT)/ Project Work Internship/ Apprenticeship Training	OJT at Metro Stations	60:40

Annexure 6: 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
DMR/LSC/N9901: Implement metro operations training and safety procedures	<i>Training Module Overview</i>	2	2	-	1
	PC1. follow schedules for weekly activities and guidelines on punctuality, discipline, and conduct.	-	-	-	-
	PC2. conduct identity verification and maintain attendance records	-	-	-	-
	PC3. ensure adherence to training timelines and program deliverables	-	-	-	-
	<i>Safety Overview</i>	2	2	-	1
	PC4. identify the role of the safety department and follow measures for personal, passenger, and system safety	-	-	-	-

PC5. use appropriate Personal Protective Equipment (PPE) in all designated areas	-	-	-	-
PC6. follow the hazard identification and risk assessment processes	-	-	-	-
<i>Store Management and Procurement</i>	2	2	-	1
PC7. perform store management activities, including stock handling, documentation, and interdepartmental coordination for procurement.	-	-	-	-
PC8. monitor inventory levels and ensure timely requisitions for required materials	-	-	-	-
PC9. maintain records of procurement processes and vendor communication	-	-	-	-
<i>Overview of Telecom, Signaling, and Track Systems</i>	2	2	-	1
PC10. identify telecom components (AFC, CCTV, PIDS, radio systems, clocks) and perform basic functional checks	-	-	-	-
PC11. identify signaling systems (CATC, CBTC) and observe/report signal functioning during visits.	-	-	-	-
PC12. identify P-Way components (rails, sleepers, crossings) and report track conditions through basic patrolling tasks	-	-	-	-
PC13. report malfunctions in telecom, signaling, or track systems using the correct reporting protocols	-	-	-	-
<i>Overview of Traction, SCADA, and E&M Systems</i>	2	2	-	1
PC14. identify traction power and SCADA components and interpret sectioning diagrams	-	-	-	-
PC15. identify E&M systems (RSS, ASS, DG sets, UPS) and perform basic checks to understand their functionality	-	-	-	-
PC16. report unusual system performance and assist in routine inspections	-	-	-	-
<i>OCC and Rolling Stock Overview</i>	2	2	-	1
PC17. familiarize with OCC systems, tools, and the role of OCC controllers	-	-	-	-
PC18. identify rolling stock components and their maintenance procedures	-	-	-	-
PC19. report rolling stock irregularities observed during operations	-	-	-	-
<i>Operations and Customer Care</i>	2	2	-	1
PC20. familiarize with station operations, revenue management, and crew control functions	-	-	-	-
PC21. identify public complaint channels, possible causes, and resolve complaints using proper processes	-	-	-	-
PC22. assist in managing passenger inquiries and ensuring customer satisfaction	-	-	-	-
<i>Practical Visits</i>	1	1	-	0.5
PC23. conduct visits to OCC, stations, depots, and tunnels to observe layouts, facilities, and operations	-	-	-	-
PC24. document key observations during practical visits for knowledge reinforcement	-	-	-	-
PC25. identify operational challenges during visits and suggest improvement areas	-	-	-	-
<i>First Aid Training</i>	1	1	-	0.5
PC26. identify the role and scope of first aid, including key human body functions	-	-	-	-

	(e.g., circulatory, respiratory systems)				
	PC27. follow appropriate techniques for treating bleeding, fractures, burns, shock, and unconsciousness	-	-	-	-
	PC28. perform artificial respiration, CPR, and safe transportation of injured persons using stretchers	-	-	-	-
	PC29. participate in simulated first aid scenarios to enhance preparedness	-	-	-	-
	<i>Fire Fighting Systems</i>	1	1	-	0.5
	PC30. identify elements of combustion, classes of fire, and appropriate extinguishing methods	-	-	-	-
	PC31. operate active/passive fire protection systems, including alarms, fire extinguishers, and fire hydrants	-	-	-	-
	PC32. conduct practical drills and identify fire suppression equipment at metro stations	-	-	-	-
	PC33. respond to fire incidents promptly, ensuring passenger and system safety	-	-	-	-
	<i>Security in Metro Systems</i>	1	1	-	0.5
	PC34. identify security threats, red alert situations, and follow protocols for disaster management	-	-	-	-
	PC35. handle theft cases, manage abandoned persons, and lodge FIRs as per protocol	-	-	-	-
	PC36. coordinate with security personnel to mitigate security breaches effectively	-	-	-	-
	<i>Metro Rail General Rules 2020</i>	1	1	-	0.5
	PC37. interpret key provisions under Metro Rail General Rules 2020, including signals, train speed limits, and safety protocols	-	-	-	-
	PC38. follow operational procedures for maintenance, station control duties, and driverless train systems	-	-	-	-
	PC39. ensure compliance with rules for safe and efficient train operations	-	-	-	-
	<i>Safety Circulars and Contingency Plans</i>	1	1	-	0.5
	PC40. implement procedures for the imposition of TSR, axle counter reset, Train ID management, and Computer Aided Train Supervision (CATS) operation	-	-	-	-
	PC41. follow guidelines for engineering possession and maintenance activities during non-revenue hours, including hot work, solar system testing/repair, and role-play exercises	-	-	-	-
	PC42. ensure compliance with procedures for stopping trains at platforms and during operational disruptions, such as earthquakes, high winds, and floods	-	-	-	-
	PC43. manage degraded mode operations, including train movement during interlocking failures	-	-	-	-
	PC44. oversee the issue, revision, updating, and deletion of SOPs, SWO/DWO, and timetable trials for new sections	-	-	-	-
	PC45. facilitate the initiation of revenue train services, including pilot train movement, ATO/UTO/ATB mode operations, and AFTC functionality checks	-	-	-	-
	PC46. execute procedures for negotiating neutral sections, managing pantograph	-	-	-	-

	failures, and monitoring Panto-OHE interface cameras				
	PC47. oversee train stabling, depot entry/exit, train movement, and fitness checks	-	-	-	-
	PC48. conduct emergency evacuation using UG facilities, mid-tunnel shafts, and walkways for detrainment of passengers due to technical failure, explosion, or fire	-	-	-	-
	PC49. operate and manage non-ATP vehicles such as RGM and CMV/CTMC and address incidents like rail fractures, weld failures, rollback scenarios, radio communication issues and resetting of passenger alarms in train	-	-	-	-
	PC50. coordinate vehicle movement on link lines and rescue immobilized trains	-	-	-	-
	PC51. respond to fire/smoke incidents, including UG train fires, ensuring passenger and staff safety	-	-	-	-
	PC52. operate ETS/BLS plungers, remove foreign objects like kites from OHE, and follow OHE safety guidelines	-	-	-	-
	Total Marks	20	20	-	10
DMR/LSC/N0201: Oversee the operation and maintenance of metro signalling and train control systems	<i>Metro signalling</i>	<i>1</i>	<i>1</i>	<i>-</i>	<i>0.5</i>
	PC1. define key signalling terms and use them accurately in communication with team members	-	-	-	-
	PC2. identify the functioning of S&T systems like signal, point, track circuit, axle counter, interlocking, ESP, EKT, ATP, and ATS	-	-	-	-
	<i>Communication-Based Train Control (CBTC) System</i>	<i>1</i>	<i>1</i>	<i>-</i>	<i>0.5</i>
	PC3. operate CBTC systems to control train movement, ensuring adherence to safety protocols	-	-	-	-
	PC4. use CBTC to monitor train location, position, and movement through communication channels	-	-	-	-
	PC5. demonstrate the working of the CBTC moving block concept and how it manages train spacing to the relevant personnel	-	-	-	-
	PC6. troubleshoot basic issues in the CBTC system and escalate unresolved issues to relevant technical support	-	-	-	-
	<i>Platform Screen Doors (PSD) and depot operations</i>	<i>1</i>	<i>1</i>	<i>-</i>	<i>1</i>
	PC7. inspect platform screen doors to ensure proper alignment and functionality	-	-	-	-
	PC8. respond to any PSD malfunctions and initiate emergency protocols, as required	-	-	-	-
	PC9. facilitate depot signalling operations, managing train movements for maintenance activities	-	-	-	-
	PC10. execute test track signalling operations, testing dynamic train functions such as ATC and braking	-	-	-	-
	<i>Markers, indicators, overlap, isolation, and sighting distance</i>	<i>1</i>	<i>1</i>	<i>-</i>	<i>0.5</i>
	PC11. identify and interpret different types of marker boards and indicators used in metro signalling to control and monitor train movements	-	-	-	-
	PC12. demonstrate the function of markers and indicators to the relevant personnel for guiding train operations, including start, stop, and caution signals	-	-	-	-

PC13. implement procedures for overlap and isolation to ensure safe distance and section control	-	-	-	-
PC14. measure sighting distances to ensure train operators have adequate visibility in all operating conditions	-	-	-	-
<i>Schedule of Dimension (SoD)</i>	1	1	-	0.5
PC15. refer to the SoD to ensure signalling installations comply with safety and clearance requirements	-	-	-	-
PC16. apply SoD standards in practical scenarios, adjusting installation procedures to maintain regulatory compliance	-	-	-	-
<i>Control table and locking arrangements</i>	2	2	-	0.5
PC17. use control tables to monitor and configure signal and track locking arrangements	-	-	-	-
PC18. identify different types of locking arrangements using the control table	-	-	-	-
<i>Overview of interlocking (IXL) systems</i>	1	1	-	0.5
PC19. differentiate between various interlocking systems, e.g. mechanical, Route Relay Interlocking (RRI), Solid State Interlocking (SSI), and Computer-Based Interlocking (CBI)	-	-	-	-
PC20. explain the basic working principles, operational differences, advantages and limitations of different IXL systems	-	-	-	-
<i>Point machine working, importance and general definition</i>	2	2	-	1
PC21. explain the working principles of trailable and non-trailable point machines	-	-	-	-
PC22. conduct checks on point machines to ensure correct alignment and smooth switching	-	-	-	-
<i>Signal Overview (Semaphore to CLS)</i>	1	1	-	0.5
PC23. differentiate between Semaphore and Colour Light Signals (CLS) signalling based on the type and purpose	-	-	-	-
PC24. operate and interpret various types of signals used in metro operations, ensuring compliance with modern CLS protocols	-	-	-	-
<i>Track detection devices</i>	1	1	-	0.5
PC25. operate track circuits and axle counters, monitoring for accurate train detection and section occupancy	-	-	-	-
PC26. differentiate between track circuit and axle counter functionalities, explaining their operational advantages	-	-	-	-
PC27. conduct routine maintenance, calibration and troubleshooting on track circuits and axle counters to ensure reliability	-	-	-	-
<i>Automatic Train Supervision (ATS)</i>	1	1	-	0.5
PC28. operate ATS commands to control train movements, respond to alarms, and manage schedules	-	-	-	-
PC29. monitor ATS status, ensuring all local and central ATS protocols are active and accurate	-	-	-	-
<i>Automatic Train Protection (ATP)</i>	1	1	-	0.5

PC30. ensure correct activation of ATP operations during train movements	-	-	-	-
PC31. monitor ATP status and report any deviations from safety standards immediately	-	-	-	-
<i>Working of relays</i>	1	1	-	0.5
PC32. inspect relay connections and settings to verify they meet operational standards for controlling signal and track circuit functions	-	-	-	-
PC33. perform basic troubleshooting on relays to diagnose common issues, such as contact wear or coil failure, and report findings	-	-	-	-
<i>Maintenance precautions</i>	1	1	-	0.5
PC34. conduct general maintenance checks on signalling equipment following safety protocols	-	-	-	-
PC35. document all maintenance activities, including preventive and corrective tasks, in the logbook	-	-	-	-
PC36. coordinate with other departments and report on the status of signalling maintenance	-	-	-	-
<i>Telecom and signalling interfacing</i>	1	1	-	0.5
PC37. ensure telecom systems are functioning correctly and troubleshoot connectivity with signalling systems	-	-	-	-
PC38. conduct tests on the fiber optic transmission system to ensure robust network communication	-	-	-	-
PC39. maintain and troubleshoot networking connections between telecom and signalling systems	-	-	-	-
PC40. utilize systems available for emergency communication effectively	-	-	-	-
<i>P-Way, traction, and E&M integration</i>	1	1	-	0.5
PC41. inspect P-Way interfaces with signalling systems to ensure accurate alignment and track quality	-	-	-	-
PC42. verify traction system components (OHE, RSS, TSS) and manage safety requirements during power transitions	-	-	-	-
PC43. oversee traction power requirements and interfaces, ensuring coordinated responses with signalling operations	-	-	-	-
PC44. carry out OHE operation during maintenance and failures	-	-	-	-
PC45. carry out lift rescue operation for passengers trapped in lift	-	-	-	-
PC46. start and stop escalators during following operational procedures during Standard scenarios/ emergencies	-	-	-	-
<i>Rolling stock and signalling system interface</i>	1	1	-	0.5
PC47. check the signalling and rolling stock interfaces for continuous data exchange	-	-	-	-
PC48. monitor CCTV integration with signalling for safe train operations and incident management	-	-	-	-
<i>Visits and practical exposure</i>	1	1	-	0.5
PC49. participate in hands-on training by visiting signalling equipment rooms, gaining practical exposure to equipment functions and maintenance protocols	-	-	-	-

	PC50. conduct supervised visits to the Depot Control Centre and Central ATS to observe train control operations in a real-time environment	-	-	-	-
	PC51. visit the Fault Management Controller (FMC) and central ATS for a comprehensive understanding of signalling operations and incident management	-	-	-	-
	Total Marks	20	20	-	10
DMR/LSC/N0202: Oversee the operation and maintenance of signalling and safety systems for rail operations	<i>Signalling system and circuit drawing</i>	<i>3</i>	<i>1</i>	-	<i>1</i>
	PC1. explain the overall signalling system and identify subsystems relevant to the train operations	-	-	-	-
	PC2. read and interpret circuit diagrams to trace faults and conduct root-cause analyses	-	-	-	-
	PC3. document and report findings from circuit analyses and recommend corrective actions	-	-	-	-
	<i>Measuring tools and PSD</i>	<i>2</i>	<i>2</i>	-	<i>1</i>
	PC4. identify and use measuring tools to confirm signalling equipment parameters, such as voltage and resistance	-	-	-	-
	PC5. perform operational checks on PSDs, confirming alignment with signalling control	-	-	-	-
	PC6. execute scheduled maintenance on PSDs, documenting any deviations and corrective actions	-	-	-	-
	<i>Interlocking (IXL) systems</i>	<i>2</i>	<i>2</i>	-	<i>1</i>
	PC7. operate interlocking systems, ensuring that all safety interlocks are engaged correctly	-	-	-	-
	PC8. maintain interlocking equipment by performing regular checks on locking components and circuits	-	-	-	-
	PC9. troubleshoot and resolve basic interlocking faults, escalating complex issues to senior technicians	-	-	-	-
	<i>Signals and signal maintenance</i>	<i>2</i>	<i>2</i>	-	<i>1</i>
	PC10. inspect signal visibility, lighting, and positioning, ensuring compliance with visibility standards	-	-	-	-
	PC11. conduct routine signal maintenance to ensure each signal is fully operational	-	-	-	-
	PC12. respond promptly to signal failures and coordinate with control centers to rectify issues	-	-	-	-
	<i>Axle counter and track circuit</i>	<i>1</i>	<i>2</i>	-	<i>1</i>
	PC13. test axle counter systems for accuracy, ensuring they correctly detect and register train movements	-	-	-	-
	PC14. calibrate and maintain track circuits, checking for consistency in section occupancy detection	-	-	-	-
	PC15. log and report any anomalies in track detection for further investigation	-	-	-	-
	<i>Point machines</i>	<i>3</i>	<i>3</i>	-	<i>1</i>
	PC16. inspect and test trailable and non-trailable point machines for alignment and	-	-	-	-

	proper locking				
	PC17. oversee maintenance of point machines, including scheduled checks and fault rectifications	-	-	-	-
	PC18. operate Electric Key Transmission (EKT) and Emergency Stop Plunger (ESP) for safe train movement control	-	-	-	-
	PC19. reset EKT, ESP, and SPK (Personnel Protection Key) during emergencies following safety protocols	-	-	-	-
	<i>ATS and track access</i>	1	2	-	1
	PC20. manage ATS commands for normal and critical scenarios, including track access and block granting	-	-	-	-
	PC21. coordinate with the Fault Management Controller (FMC) for track access permissions and communicate block statuses	-	-	-	-
	<i>ATP equipment</i>	2	2	-	1
	PC22. monitor onboard & wayside ATP equipment, verifying that it consistently safeguards train operations	-	-	-	-
	PC23. use diagnostic and monitoring tools for ATP systems, identifying and resolving basic faults	-	-	-	-
	PC24. download and analyze logs from ATP system for preventive maintenance and troubleshooting	-	-	-	-
	<i>Power supply</i>	1	1	-	0.5
	PC25. test power supply continuity and ensure all electrical safety standards are met, including earthing arrangement	-	-	-	-
	PC26. oversee power supply maintenance activities	-	-	-	-
	<i>CCTV system</i>	1	1	-	0.5
	PC27. check and ensure proper maintenance of CCTV systems, ensuring camera angles and video quality are optimal	-	-	-	-
	PC28. identify and ensure prompt replacement of faulty CCTV components to maintain system integrity	-	-	-	-
	<i>Radio communication</i>	1	1	-	0.5
	PC29. operate and ensure proper maintenance of radio communication systems for their effective function for operational needs	-	-	-	-
	<i>Route Table</i>	1	1	-	0.5
	PC30. check the alignment of route tables with current track configurations, confirming proper signalling setup	-	-	-	-
	Total Marks	20	20	-	10
DGT/VSQ/N0101: Employability Skills (30 Hours)	<i>Introduction to Employability Skills</i>	1	1	-	-
	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 & 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 & Jobs</i>	1	3	-	-
	PC19. create a basic biodata	-	-	-	-
	PC20. search for suitable jobs and apply	-	-	-	-
	PC21. identify and register apprenticeship opportunities as per requirement	-	-	-	-
	Total Marks	20	30	-	-
	Grand Total	80	90	-	30

Annexure 7: 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:

- Batches assigned to the assessment agencies for conducting the assessment on SIDH
- The batch allocation Matrix prepared for each month based on previous months' performance of AAs, which determines the quantum of Assessment which can be allocated to each AA for a month
- Post allocation of assessment, Assessment agencies send the assessment confirmation to AB
- Assessment agency deploys the ToA certified Assessor for executing the assessment
- AB monitors the assessment process.

2. Testing Environment:

- A combination of Theory and practical/demonstration test is deployed to assess knowledge and Skill respectively of Learners.
- Assessment is conducted at Training center in in-person/offline mode
- For Skill assessment, environment is simulated to create a realistic Working Environment that should replicate the key features of the workplace. In job roles, where it is difficult to replicate the same, the OJT assessment is implemented.
- During the practical task, trainees are assessed on their workmanship, quality of finished product, time management, etc., based on the performance criteria (PC), knowledge and understanding and their professional and soft skills as specified in the qualification pack.
- Knowledge assessment is done through closed ended questions up to level 4 and from level 5 onwards, it is mixture of open ended and closed ended questions

3. Assessment Quality Assurance levels/Framework

- Assessment criteria is developed for each QP which acts as a guide for developing question set /banks
- Sample questions aligned with Assessment criteria for each QP are developed by AB and validated by industry
- Taking reference of Assessment criteria and Sample Questions, AAs create the question bank which is further validated by AB
- Questions are mapped to the specified assessment criteria
- It is mandatory that Assessor and Trainer must be ToA certified & ToT Certified respectively
- 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 the 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

4. Types of evidence or evidence-gathering protocol:

- Post Assessment, the evidences are uploaded by Assessor to assessment agency and further assessment agency to AB as per stipulated TAT
- Evidences are broadly the photographic and video graphic in nature
- Assessment agencies upload the evidence on SIDH and detailed evidence on AB digital platform (ZoHO)
- Evidences are; NOS wise-Geotagged photographs and videos of Theory Test & Practical Tasks, Attendance sheet, result summary sheet, group photographs.

5. Method of verification or validation:

- The process and technical audit of assessment batches are done by AB
- 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 SIDH are matching with respect to summary sheet submitted by AAs
- Under detailed technical audit for sample of batches, the knowledge and skill assessment results for each candidate is checked in technical aspect.
- All the evidences of batches are preserved on server of AB digital platform

On the Job Training:

On job training (OJT), candidates undergo training and learning 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 DMRC Academy. 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 of company under which candidates undergo on job training.

Annexure 8: 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
DMRA	Delhi Metro Rail Academy
MR	Metro Railway
PSI	Power Supply Installation
SCADA	Supervisory Control and Data Acquisition
OHE	Overhead Electrification
DERC	Delhi Electricity Regulatory Commission
HERC	Haryana Electricity Regulatory Commission
UPPCL	Uttar Pradesh Power Corporation Limited
CBTC	Communication-Based Train Control
CLS	Colour Light Signals
ATS	Automatic Train Supervision
ATP	Automatic Train Protection
PSD	Platform Screen Doors
IXL	Interlocking
RRI	Route Relay Interlocking
SSI	Solid State Interlocking
CBI	Computer-Based Interlocking
FMC	Fault Management Controller
EKT	Electric Key Transmission
ESP	Emergency Stop Plunger

SPK	Signal Protection Key
UTO	Unattended Train Operation
DTO	Driverless Train Operation
SIDH	Skill India Digital Hub

Glossary

Term	Description
National Occupational Standards (NOS)	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.
Qualification	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
Qualification File	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.
Sector	A grouping of professional activities on the basis of their main economic function, product, service or technology.
Long Term Training	Long-term skilling means any vocational training program undertaken for a year and above. https://ncvet.gov.in/sites/default/files/NCVET.pdf