



QUALIFICATION FILE

Junior Engineer – Traction (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

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Section 1: Basic Details

1.	Qualification Name	Junior Engineer – Traction (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 – Traction (Metro Rail)							
5.	National Qualification Register (NQR) Code &Version (Will be issued after NSQC approval)	QG-4.5-TW-03511-2025-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	The Junior Engineer - Traction oversees the installation, operation, and maintenance of Power Supply Installation (PSI) and SCADA systems, ensuring reliable power supply within the traction network. This role includes coordinating Overhead Electrification (OHE) maintenance, coordinating with technical teams, and ensuring adherence to safety protocols for efficient traction system operations.							
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 Electrical / Mechanical 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 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)	NA							

13.	Training Duration by Modes of Training Delivery (<i>Specify Total Duration as per selected training delivery modes and as per requirement of the qualification</i>)	☒ 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>180</td><td>120</td><td>210</td><td>-</td><td>510</td></tr> <tr> <td>Online</td><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table>		Training Delivery Modes	Theory (Hours)	Practical (Hours)	OJT Mandatory (Hours)	OJT Recommended (Hours)	Total (Hours)	Classroom (offline)	180	120	210	-	510	Online					
Training Delivery Modes	Theory (Hours)	Practical (Hours)	OJT Mandatory (Hours)	OJT Recommended (Hours)	Total (Hours)																
Classroom (offline)	180	120	210	-	510																
Online																					
		(Refer Blended Learning Annexure for details)																			
14.	Aligned to NCO/ISCO Code/s (<i>if no code is available mention the same</i>)	NCO-2015/3122.5600																			
15.	Progression path after attaining the qualification (<i>Please show Professional and Academic progression</i>)	Junior Engineer – Traction (Metro Rail) (L4.5) → Engineer – Traction (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 – Traction (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 traction 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 (<i>Specify the NOS/Module which covers it</i>)	☒ 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 (<i>In case of CS or MS, provide details of both Lead AB & Supporting ABs</i>)	Name: Chandra Kishor Prasad Email: ckprasad@dmrc.org Contact No.: 99586 90650 Website: https://dmra.delhimetrorail.com/																			
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	15
2.	Oversee Power Supply Installation (PSI) and maintenance in the traction system	DMR/LSC/N0 101, v1.0	Core	4.5	4	30	30	60	-	120	20	20	-	10	50	20
3.	Oversee power system protection and control	DMR/LSC/N0 102, v1.0	Core	4.5	3	15	15	60	-	90	20	20	-	10	50	20
4.	Oversee the SCADA system operations and maintenance	DMR/LSC/N0 103, v1.0	Core	4.5	2	15	15	30	-	60	20	20	-	10	50	20
5.	Oversee the maintenance of Overhead Electrification (OHE) systems	DMR/LSC/N0 104, v1.0	Core	4.5	4	30	30	60	-	120	20	20	-	10	50	20
6.	Employability Skills (30 Hours)	DGT/VSQ/N0 101, v1.0	Non-Core	2.0	1	30	-	-	-	30	20	30	-	-	50	5
Duration (in Hours) / Total Marks					17	180	120	210		510	120	130		50	300	100

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 Engineering/Electronics Engineering/Power Systems 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 Engineering/Electronics Engineering/Power Systems 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 Engineering/Electronics Engineering/Power Systems 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 Engineering/Electronics Engineering/Power Systems 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 Engineering/Electronics Engineering/Power Systems 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>)	NA
6.	Annexure: Multiple Entry-Exit Details (<i>Mandatory, in case qualification has multiple Entry-Exit</i>)	NA
7.	Annexure: Acronym and Glossary (<i>Optional</i>)	<i>Annexure 8</i>

8.	Supporting Document: Model Curriculum (Mandatory – Public view)	Attached
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 Power Supply Installation (PSI) and Maintenance - Review project specifications related to power supply requirements. - Determine PSI requirements based on system design and operational needs. - Schedule and coordinate resources for installation and maintenance activities. Oversee Power System Protection and Control - Assess protection system specifications and ensure compliance with safety standards. - Monitor system performance to prevent electrical faults and ensure system reliability. - Coordinate maintenance activities to ensure effective protection mechanisms are in place. Oversee SCADA System Operations and Maintenance - Oversee SCADA system functionality to ensure effective monitoring and control of traction systems. - Schedule routine maintenance and updates for SCADA software and hardware. - Analyze operational data to identify trends and potential issues. Oversee the Maintenance of Overhead Electrification (OHE) Systems - Plan and coordinate OHE maintenance activities to ensure system reliability.	The Junior Engineer in Traction must possess specialized knowledge of traction power systems, maintenance protocols, and compliance requirements for overhead electrification (OHE) infrastructure. The role demands an understanding of procedural frameworks such as safety regulations, operational standards, and electrical engineering principles. Additionally, they need to apply quality management and time management principles effectively in overseeing maintenance activities to ensure the reliability and efficiency of traction systems. Hence, it falls under Level 4.5.	4.5

	- Conduct inspections of OHE systems to identify wear and necessary repairs. - Implement safety protocols during maintenance operations to protect personnel and equipment. Conduct Regular Inspections - Inspect tools and equipment before and after use to ensure compliance with operational standards. - Identify maintenance needs and coordinate repairs as necessary. - Ensure all tools are in operational condition for safe and effective use. Manage Equipment and Inventory - Safely store and transport tools and equipment to prevent damage or loss. - Track tool usage and maintain parts inventory to ensure availability for maintenance tasks. - Prepare for replacements and updates based on equipment performance and wear. Provide Decision Support - Offer data-backed recommendations for system improvements and maintenance strategies. - Support engineering teams in assessing system performance and reliability. - Verify data quality and accuracy to ensure informed decision-making in traction operations.		
Professional and Technical Skills/ Expertise/ Professional Knowledge	- Know the principles of power supply installation and maintenance specific to traction systems to ensure operational reliability and efficiency. - Understand the operational standards and safety regulations associated with power system protection and control to prevent electrical hazards. - Know how to interpret SCADA system data to monitor traction system performance and make informed decisions for operational improvements. - Understand the functionality and components of Overhead Electrification (OHE) systems to oversee their maintenance effectively. - Knowledge of electrical engineering principles as they apply to traction systems, including voltage levels, load calculations, and circuit design.	A Junior Engineer-Traction is required to demonstrate advanced technical skills in overseeing maintenance activities for traction systems. He/She must be adept in utilizing specialized equipment and tools for diagnostics and repairs, ensuring efficient operation of overhead electrification systems. Skills in project management, resource allocation, and team leadership are critical, as junior engineers coordinate tasks among various teams while optimizing performance and minimizing downtime. Their expertise extends to analyzing data from SCADA systems to monitor system integrity and identify potential issues before they escalate. Hence, it falls under Level 4.5.	4.5

	• Know how to implement preventive maintenance schedules for power supply and OHE systems to enhance system longevity and reliability. • Understand the diagnostic tools and techniques used for identifying faults in power systems to ensure timely interventions. • Knowledge of relevant software and technologies for monitoring and controlling traction systems through SCADA interfaces. • Know how to conduct risk assessments related to power supply installations and maintenance to ensure compliance with safety standards. • Understand the impact of environmental factors on the performance of traction systems, including weather conditions and geographical considerations.		
Employment Readiness & Entrepreneurship Skills & Mind-set/Professional Skill	• Select appropriate tools and techniques for the effective installation and maintenance of power supply systems in traction applications. • Identify training needs for team members to enhance their technical skills and ensure compliance with industry standards. • Oversee daily operations to ensure adherence to safety protocols and efficiency in traction system management. • Develop and implement maintenance schedules that maximize uptime and extend the lifespan of traction equipment. • Evaluate performance metrics to assess the efficiency of traction systems and recommend improvements. • Manage project timelines and budgets to ensure that power supply installations and maintenance tasks are completed on schedule and within financial constraints. • Foster collaboration among team members and other stakeholders to promote a cohesive working environment and effective communication. • Adapt to emerging technologies in traction systems and SCADA operations to stay current with industry advancements.	Individuals in this role should exhibit strong employability skills, including effective communication, leadership, and conflict resolution. The ability to interpret technical documentation and communicate complex information clearly to team members and stakeholders is vital. Furthermore, junior engineers should demonstrate problem-solving capabilities, proactively addressing operational challenges and enhancing team collaboration. Their entrepreneurial mindset fosters innovation in maintenance strategies and promotes efficiency in operations, ensuring that all work adheres to safety standards while meeting project deadlines. Hence, it falls under Level 4.5.	4.5

	- Create and maintain comprehensive documentation of maintenance activities, system modifications, and compliance with regulations. - Promote a culture of safety and continuous improvement within the team to enhance operational effectiveness and reduce risks.		
Broad Learning Outcomes/Core Skill	- Carry out compliance with safety standards to ensure a safe working environment during traction system operations and maintenance. - Carry out efficient power supply management by coordinating installations and maintenance activities to guarantee uninterrupted service. - Carry out effective SCADA operations to monitor and control traction systems in real-time, ensuring data accuracy and prompt responses to alerts. - Carry out maintenance strategies for OHE systems to maximize efficiency, reduce downtime, and extend the lifespan of the electrification infrastructure. - Carry out team coordination and communication to enhance collaboration among team members and stakeholders for smooth operations and project completion.	At Level 4.5, Junior Engineer-Traction is expected to achieve broad learning outcomes that encompass foundational skills in mathematics, analytical reasoning, and technical literacy. They must effectively apply mathematical principles for load calculations, system design, and maintenance planning. Proficiency in analytical thinking enables Junior Engineers to assess system performance and implement improvements based on data-driven insights. Additionally, they should possess robust documentation skills for maintaining accurate records of maintenance activities, generating reports, and ensuring compliance with regulatory requirements.	4.5
Responsibility	- Power supply arrangement - Metering systems - Energy meters - DERC, HERC, and UPPCL guidelines - Site visit to RSS for supply system arrangement - Types of power block and Permit to Work (PTW) - Workforce planning and staff coordination - Fundamentals, types, requirements, and benefits of earthing - Equipment earthing and mock drill for power block availing and cancellation - Role and duties and importance of TPC - Feed extension safety, emergency feeding conditions, and interlocking principles - Tools and Plants used in PSI - Power cables, cable jointing procedures, and testing - PSI store and project site visit for tools and cables familiarization	The Junior Engineer - Traction oversees the installation, operation, and maintenance of Power Supply Installation (PSI) and SCADA systems, ensuring reliable power supply within the traction network. This role includes overseeing Overhead Electrification (OHE) maintenance, coordinating with technical teams, and ensuring adherence to safety protocols for efficient traction system operations. Hence, it falls under Level 4.5.	4.5

	• Indian electricity rules and acts related to tariff • Electrical safety • Safe visit to substation and working on PSI equipment • Liaison with higher authorities and Traction Power Controller (TPC) • Site visit to OCC for TPC working • Traction and auxiliary power transformers • Circuit Breakers (CBs), Isolators, Interrupters, and Control Supply of CBs • Circuit breaker model • Operation of protection systems (O/C & E/F, Distance, REF, etc.) • Relay types and features • Current Transformer (CT), Potential Transformer (PT), and Lightning Arrestor (LA) applications • Relay checks and fault data analysis at substations • Failure analysis of PSI equipment and preventive actions • Routine documentation and maintenance monitoring • Gas Insulated Switchgear (GIS) system, features, and maintenance • Meggering, earth resistance testing, BDV, and DGA tests • SCADA system overview and hardware • Communication arrangements in SCADA • Converters, transducers, and surge arresters • SCADA alarms and event management • SCADA lab cards • Substation Automation System (SAS) and integration with SCADA • Final PSI and SCADA testing • OCC site visit concerning Low Voltage Switchgear (LVS) Panel and UPS • Mast, portal, and TTC types and technical specifications • Cantilever system components and specifications • Types and specifications of conductors • Power block procedures and safety protocols • OHE safety protocols • Coordination with TPC for night and failure conditions		
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	- Maintenance vehicles (CMV/OMV), ladder trolleys, and their parts - Neutral sections and ROCS system - OHE maintenance, foot patrolling, and routine checks - Auto Tensioning Device (ATD) and jumper specifications		
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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.	Multimeter	Nos	3
2.	Clamp Meter	Nos	3
3.	Infrared Thermometer	Nos	1
4.	Two-Way Radios/tetra set	Nos	2
5.	Tablet or Laptop with SCADA Software & Relay	Nos	1
6.	PPE Kits (hard hat, hi-vest, gloves, goggles, ear protection, safety helmet, safety shoes)	Nos	4
7.	Insulated gloves (for 33 kV level)	Pair	4
8.	Inspection Checklists and Forms	Nos	5
9.	Laser Distance Measurer	Nos	1
10.	Digital Calipers	Nos	1
11.	Torque Wrench	Nos	1
12.	Tool Belt or Carrying Case	Nos	1
13.	Sample SCADA System Console	Nos	2
14.	OHE Model or Prototype (FOCS & ROCS)	Nos	1
15.	First aid Chart	Nos	1
16.	Do and don'ts chart	Nos	1
17.	Electrical Schematic Diagrams	Nos	1
18.	Training Manual	Nos	30
19.	BDV Kit	Nos	1
20.	Earth Pit Measurement Kit Tester (Digital)	Nos	1
21.	Earth clamp on meter	Nos	1
22.	Insulation Tester (Digital)	Nos	1
23.	Standard Tool box (for OHE)	Nos	2
24.	Standard Tool box (for PSI)	Nos	2
25.	Rack-In/out handle (33 kV, HPA model)	Nos	1
26.	DGA testing kit	Nos	1

27.	BDV Kit	Nos	1
28.	Oil sampling bottle	Nos	2
29.	Connecting flange with nipple & pipe for oil	Nos	2
30.	Pull Lift, 3 Ton	Nos	1
31.	Pull Lift, 1.5 Ton	Nos	1
32.	Pull Lift, 0.75 Ton	Nos	1
33.	D-shackle, 16 mm	Nos	6
34.	D-shackle, 25 mm	Nos	2
35.	D-shackle, 19 mm	Nos	2
36.	Sling	Nos	10
37.	Aluminum double ladder	Nos	1
38.	Aluminum single ladder	Nos	1
39.	Ladder (A type 12 & 4 ft, sliders)	Nos	1
40.	Tirfor 3.0 Ton Cap with rope and handle	Nos	1
41.	Tirfor 1.5 Ton Cap with rope and handle	Nos	1
42.	Tirfor 0.75 Ton Cap with rope and handle	Nos	1
43.	Spirit level gauge 30 cm	Nos	1
44.	Spirit level gauge 100 cm	Nos	1
45.	Measuring tape 30 meters	Nos	1
46.	High voltage sensing device	Nos	1
47.	Dynamometer 5-ton capacity	Nos	1
48.	Full body harness safety belt	Nos	4
49.	Discharge rod	Nos	4
50.	Operating rod	Nos	2
51.	Banner Flag	Nos	2
52.	Power Block Message Register	Nos	1
53.	CMV/CTMC on site	Nos	1
54.	First aid box	Nos	2
55.	Numerical Relay (OC/EF)	Nos	1
56.	Gas charging portable kit	Nos	2
57.	RTU panel	Nos	1
58.	OHE accessories (PG clamp, OPC clamp, Catenary wire splice, contact wire splice etc)	Nos	2

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 DMRC Metro Stations	60:40
4	☐ Imparting Practical Hands-on Skills/ Lab Work/ workshop/ shop floor training	Practical demonstrations & OJT at DMRC 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 DMRC 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>	<i>1</i>	<i>1</i>	<i>-</i>	<i>0.5</i>
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>	<i>1</i>	<i>1</i>	<i>-</i>	<i>0.5</i>
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>	<i>1</i>	<i>1</i>	<i>-</i>	<i>0.5</i>
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>	<i>1</i>	<i>1</i>	<i>-</i>	<i>0.5</i>
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/N0101: Oversee Power Supply Installation (PSI) and maintenance in the traction system	<i>Power supply arrangement</i>	<i>2</i>	<i>2</i>	<i>-</i>	<i>1</i>
	PC1. monitor and manage power supply sources, voltage levels, and transmission paths	-	-	-	-
	PC2. coordinate with the Operations Control Center (OCC) to ensure seamless power transitions	-	-	-	-
	PC3. identify and troubleshoot issues with traction power supply interruptions to minimize downtimes	-	-	-	-
	<i>Metering systems</i>	<i>2</i>	<i>2</i>	<i>-</i>	<i>1</i>
	PC4. inspect and calibrate energy meters and metering systems at appropriate intervals for accuracy	-	-	-	-
	PC5. detect, report, and rectify metering anomalies or failures	-	-	-	-
	PC6. conduct audits to verify meter readings and detect energy losses	-	-	-	-
	<i>Energy meters</i>	<i>2</i>	<i>2</i>	<i>-</i>	<i>1</i>
	PC7. operate and interpret readings from energy meters and diagnose faults	-	-	-	-
	PC8. maintain records of energy consumption and generate necessary reports	-	-	-	-
	PC9. engage in preventive and corrective maintenance of energy meters	-	-	-	-
	<i>DERC, HERC, and UPPCL guidelines</i>	<i>2</i>	<i>2</i>	<i>-</i>	<i>1</i>
	PC10. adhere to the regulatory guidelines by Delhi Electricity Regulatory Commission (DERC), Haryana Electricity Regulatory Commission (HERC), and Uttar Pradesh Power Corporation Limited (UPPCL) in day-to-day operations and energy management	-	-	-	-
	PC11. follow updated guidelines affecting traction power supply and safety protocols	-	-	-	-
	PC12. coordinate with local authorities to adhere to legal and compliance standards	-	-	-	-
	<i>Site visit to RSS for supply system arrangement</i>	<i>1</i>	<i>1</i>	<i>-</i>	<i>1</i>
	PC13. inspect Receiving Substations (RSS) setups for correct power supply arrangement and safety protocols	-	-	-	-
	PC14. identify, assess, and report potential supply or safety issues	-	-	-	-
	PC15. coordinate with maintenance teams to ensure RSS equipment meets operational standards	-	-	-	-
	<i>Types of power block and Permit to Work (PTW)</i>	<i>2</i>	<i>2</i>	<i>-</i>	<i>0.5</i>
	PC16. assess, request, and monitor power blocks based on maintenance needs and operational schedules	-	-	-	-
	PC17. issue and oversee PTWs to authorize safe working conditions	-	-	-	-
	PC18. ensure timely availing and cancellation of power blocks as per operational requirements	-	-	-	-
	<i>Workforce planning and staff coordination</i>	<i>1</i>	<i>1</i>	<i>-</i>	<i>0.5</i>
	PC19. assess workload requirements and allocate team members based on expertise	-	-	-	-
	PC20. coordinate tasks among staff for efficient workflow	-	-	-	-

	PC21. maintain clear communication channels with the team for task updates	-	-	-	-
	<i>Fundamentals, types, requirements, and benefits of earthing</i>	1	1	-	0.5
	PC22. apply knowledge of various earthing techniques based on equipment needs	-	-	-	-
	PC23. conduct earthing inspections to ensure compliance with safety standards	-	-	-	-
	<i>Equipment earthing and mock drill for power block availing and cancellation</i>	1	1	-	0.5
	PC24. inspect earthing setups at various sites for compliance	-	-	-	-
	PC25. conduct mock drills for safe power block availing and cancellation	-	-	-	-
	<i>Role and duties and importance of TPC</i>	1	1	-	0.5
	PC26. determine the TPC responsibilities in managing power flow and addressing emergencies	-	-	-	-
	PC27. assist and support TPC duties when required	-	-	-	-
	<i>Feed extension safety, emergency feeding conditions, and interlocking principles</i>	1	1	-	0.5
	PC28. coordinate safe procedures during feed extensions and emergency scenarios	-	-	-	-
	PC29. apply interlocking principles to prevent conflicting power supply situations	-	-	-	-
	<i>Tools and Plants used in PSI</i>	1	1	-	0.5
	PC30. inspect and understand the function of different PSI tools and plants	-	-	-	-
	PC31. maintain and report on tool condition and usability	-	-	-	-
	<i>Power cables, cable jointing procedures, and testing</i>	1	1	-	0.5
	PC32. identify and differentiate power cables based on specifications and applications	-	-	-	-
	PC33. follow appropriate jointing procedures and perform tests like Hi-pot and SVL checks	-	-	-	-
	PC34. ensure cable integrity and safety to maintain consistent power flow without interruptions	-	-	-	-
	<i>PSI store and project site visit for tools and cables familiarization</i>	1	1	-	0.5
	PC35. conduct regular visits to PSI stores and project sites to understand equipment inventory	-	-	-	-
	PC36. familiarize with the tools and types of cables in use at the project site	-	-	-	-
	<i>Indian electricity rules and acts related to tariff</i>	1	1	-	0.5
	PC37. apply regulations regarding electricity tariffs and safe electricity usage	-	-	-	-
	PC38. ensure team compliance with Indian Electricity rules in daily operations to ensure the operations remain compliant	-	-	-	-
	Total Marks	20	20	-	10
DMR/LSC/N0102: Oversee power system protection and control	<i>Electrical safety</i>	1	1	-	0.5
	PC1. educate personnel on electrical safety protocols and emergency procedures	-	-	-	-
	PC2. implement and oversee safety checks for equipment to prevent hazards	-	-	-	-
	PC3. ensure the use of Personal Protective Equipment (PPE) and compliance with safety guidelines	-	-	-	-
	<i>Safe visit to substation and working on PSI equipment</i>	1	1	-	0.5
	PC4. conduct risk assessments before starting work on PSI equipment	-	-	-	-
	PC5. oversee adherence to lockout-tagout procedures and safe distancing	-	-	-	-
	PC6. check that all personnel on-site follow standard operating procedures	-	-	-	-
	<i>Liaison with higher authorities and Traction Power Controller (TPC)</i>	1	1	-	0.5
	PC7. report the operational status and highlight any critical issues	-	-	-	-

PC8.	collaborate with TPC for smooth operational flow, e.g. during high-demand scenarios	-	-	-	-
PC9.	ensure updates on power supply, emergency scenarios, and maintenance	-	-	-	-
	<i>Site visit to OCC for TPC working</i>	1	1	-	0.5
PC10.	observe TPC's role in controlling and monitoring power distribution	-	-	-	-
PC11.	familiarize with OCC workflows, coordination, and emergency handling procedures	-	-	-	-
	<i>Traction and auxiliary power transformers</i>	2	2	-	1
PC12.	identify the key components and their roles in traction and auxiliary transformers	-	-	-	-
PC13.	conduct inspections for maintenance and ensure operational integrity	-	-	-	-
	<i>Circuit Breakers (CBs), Isolators, Interrupters, and Control Supply of CBs</i>	2	2	-	1
PC14.	identify and operate different types of circuit breakers and isolators used in traction systems	-	-	-	-
PC15.	troubleshoot and oversee the control supply operations for circuit breakers	-	-	-	-
PC16.	conduct inspections and ensure the effective functioning of all CB components	-	-	-	-
	<i>Visit of circuit breaker model at the training institute</i>	1	1	-	0.5
PC17.	comprehend CB mechanisms and configurations by attending model-based training sessions	-	-	-	-
PC18.	handle and maintain CBs effectively in operational settings	-	-	-	-
PC19.	attend training sessions or demonstrations on the circuit breaker model at the designated training	-	-	-	-
PC20.	conduct operational tests on the model and identify potential issues, noting how circuit breakers ensure safe power distribution	-	-	-	-
	<i>Protection systems (O/C & E/F, Distance, REF, etc.)</i>	2	2	-	1
PC21.	identify and operate over-current (O/C), earth fault (E/F), distance protection, and restricted earth fault (REF) protections	-	-	-	-
PC22.	monitor and manage relay functions for these protections to prevent faults	-	-	-	-
	<i>Relay types and features</i>	2	2	-	1
PC23.	identify different types of relays and their specific functions within protection systems	-	-	-	-
PC24.	adjust relay settings based on operational requirements and safety protocols	-	-	-	-
	<i>Current Transformer (CT), Potential Transformer (PT), and Lightning Arrestor (LA) applications</i>	2	2	-	1
PC25.	install and configure CTs and PTs in alignment with system requirements	-	-	-	-
PC26.	implement and inspect lightning arrestors (LA) to protect equipment from power surges	-	-	-	-
	<i>Relay checks and fault data analysis at substations</i>	1	1	-	0.5
PC27.	perform relay checks and familiarize with relay setups at substations	-	-	-	-
PC28.	retrieve and analyze fault data from relays and adjust settings as needed	-	-	-	-
	<i>Failure analysis of PSI equipment and preventive actions</i>	1	1	-	0.5
PC29.	analyze and identify root causes of PSI equipment failures	-	-	-	-
PC30.	implement preventive measures and monitor corrective actions taken	-	-	-	-
	<i>Routine documentation and maintenance monitoring</i>	1	1	-	0.5

	PC31. record and monitor maintenance activities in Daily Progress Report (DPR) and UOR reports	-	-	-	-
	PC32. track daily maintenance tasks and report progress to senior management	-	-	-	-
	<i>Gas Insulated Switchgear (GIS) system, features, and maintenance</i>	1	1	-	0.5
	PC33. inspect GIS setups to ensure proper functionality and adherence to safety standards	-	-	-	-
	PC34. perform scheduled maintenance and identify any signs of wear or required repairs	-	-	-	-
	<i>Meggering, earth resistance testing, BDV, and DGA tests</i>	1	1	-	0.5
	PC35. conduct insulation resistance testing (Meggering), earth resistance tests, Breakdown Voltage (BDV) tests, and Dissolved Gas Analysis (DGA) tests	-	-	-	-
	PC36. document and report test results, identifying areas requiring maintenance or repair	-	-	-	-
Total Marks		20	20	-	10
DMR/LSC/N0103: Oversee the SCADA system operations and maintenance	<i>SCADA system overview and hardware</i>	2	2	-	1
	PC1. acquire an in-depth knowledge of SCADA components, including servers, interfaces, and communication devices	-	-	-	-
	PC2. conduct site visits to SCADA, OCC, and SHPK (Sub Head Post Kiln) for hands-on hardware familiarization	-	-	-	-
	<i>Communication arrangements in SCADA</i>	2	2	-	1
	PC3. review communication links within SCADA, including fiber optics, Ethernet, and wireless communication setups	-	-	-	-
	PC4. troubleshoot any issues in communication channels to maintain uninterrupted SCADA functionality	-	-	-	-
	<i>SCADA/OCC/SHPK site visits and hardware familiarization</i>	2	2	-	1
	PC5. perform detailed assessments during site visits to SCADA control centers to understand real-time operations, hardware configurations, and overall system architecture	-	-	-	-
	PC6. visit the OCC to observe operational workflows and data interfaces between SCADA and other critical systems for traction management	-	-	-	-
	PC7. conduct an inspection at the Sub Head Post Kiln (SHPK) to gain hands-on experience with hardware configurations and maintenance protocols in SCADA-related environments	-	-	-	-
	<i>Converters, transducers, and surge arresters</i>	2	2	-	1
	PC8. identify and inspect various converters and transducers in the traction power network	-	-	-	-
	PC9. ensure the proper functioning of surge arresters to protect equipment from electrical surges	-	-	-	-
	<i>SCADA alarms and event management</i>	2	2	-	1
	PC10. track and manage alarms and events generated by SCADA to detect faults and anomalies in real-time	-	-	-	-
	PC11. establish protocols to address critical alarms and document incident responses	-	-	-	-
<i>SCADA lab cards</i>		2	2	-	1

	PC12. conduct site visits to SCADA labs to examine and handle different types of cards used within the SCADA system	-	-	-	-
	PC13. troubleshoot and replace SCADA system cards as necessary	-	-	-	-
	<i>Substation Automation System (SAS) and integration with SCADA</i>	2	2	-	1
	PC14. analyze the structure and operations of the SAS system, including local SCADA systems and backup control centers	-	-	-	-
	PC15. coordinate SAS and SCADA functionalities for seamless substation automation	-	-	-	-
	<i>Visit to RSS for SAS familiarization</i>	2	2	-	1
	PC16. conduct a site visit to the RSS to analyze SAS installations, equipment layouts, and backup systems for enhanced operational knowledge	-	-	-	-
	PC17. evaluate the integration and interoperability of SCADA and SAS at the RSS to ensure seamless monitoring and control of power systems	-	-	-	-
	<i>Final PSI and SCADA testing</i>	2	2	-	1
	PC18. perform system tests on SCADA and PSI setups, noting any issues and providing feedback for improvement	-	-	-	-
	PC19. document testing results and submit a detailed report for final review	-	-	-	-
	<i>OCC site visit concerning Low Voltage Switchgear (LVS) Panel and UPS</i>	2	2	-	1
	PC20. conduct a focused inspection at the OCC for LVS panel and UPS setups, assessing power distribution and monitoring connections to the SCADA system	-	-	-	-
	PC21. review UPS system configurations at OCC to verify support for emergency power supply and resilience in SCADA operations	-	-	-	-
	PC22. implement proper maintenance protocols for LVS and UPS systems to prevent power interruptions	-	-	-	-
Total Marks		20	20	-	10
DMR/LSC/N0104: Oversee the maintenance of Overhead Electrification (OHE) systems	<i>Mast, portal, and TTC types and technical specifications</i>	2	2	-	1
	PC1. identify and select appropriate masts and portals based on technical requirements and site specifications	-	-	-	-
	PC2. conduct inspections to ensure proper placement and structural integrity of masts and portals	-	-	-	-
	<i>Cantilever system components and specifications</i>	2	2	-	1
	PC3. inspect and maintain cantilever systems, ensuring all components meet technical standards	-	-	-	-
	PC4. adjust cantilever components as necessary to optimize alignment and support	-	-	-	-
	<i>Types and specifications of conductors</i>	2	2	-	1
	PC5. identify conductor types, e.g. contact wire, catenary wire, etc., and conduct routine inspections	-	-	-	-
	PC6. replace and splice conductors as required, ensuring stability and conductivity	-	-	-	-
	<i>Site visits for practical familiarization</i>	2	2	-	1
	PC7. conduct site visits to depots to study various mast and cantilever arrangements, including mast types and their ideal placements	-	-	-	-
	PC8. perform visits to the Operations Control Center (OCC) to understand TPC working and coordination during routine and emergency situations	-	-	-	-

PC9.	participate in Electric Traction Unit (ETU) and SHPK visits to gain hands-on familiarity with the operation and maintenance of Current Maintenance Vehicles (CMVs)	-	-	-	-
PC10.	visit the Key Points Depot (KPD) to observe deck areas, transition bars, and end-point anchor arrangements critical to ensuring seamless OHE operation	-	-	-	-
PC11.	conduct visits to the OHE store to study tools and maintenance equipment, including earthing bonds and records for ETU supplies and tools provided in maintenance vehicles	-	-	-	-
	<i>Do's and don'ts of OHE maintenance</i>	1	1	-	1
PC12.	follow the essential do's and don'ts during OHE maintenance to prevent hazards and ensure safe operation, including high-traffic areas	-	-	-	-
PC13.	undertake the specified duties, including maintenance planning, team oversight, and immediate action during fault conditions	-	-	-	-
	<i>Safety protocols for mainline failure rectification</i>	1	1	-	1
PC14.	adhere to established safety protocols during fault rectification on the mainline during revenue hours, minimizing disruptions and ensuring personnel safety	-	-	-	-
PC15.	coordinate with TPC and use communication protocols effectively to manage mainline failures, especially during revenue hours, ensuring rapid restoration and public safety	-	-	-	-
	<i>Power block procedures and safety protocols</i>	1.5	1.5	-	0.5
PC16.	coordinate with teams for power block authorization and release	-	-	-	-
PC17.	follow safety protocols by properly placing discharge rods before commencing maintenance	-	-	-	-
	<i>OHE safety protocols</i>	1	1	-	0.5
PC18.	oversee OHE maintenance activities, ensuring all safety guidelines are followed	-	-	-	-
PC19.	respond to faults during revenue hours with minimal workforce and maximum safety	-	-	-	-
	<i>Coordination with TPC for night and failure conditions</i>	1	1	-	0.5
PC20.	maintain communication with TPC during routine and failure conditions	-	-	-	-
PC21.	direct teams for quick restoration during mainline failures	-	-	-	-
	<i>Maintenance vehicles (CMV/OMV), ladder trolleys, and their parts</i>	1.5	1.5	-	0.5
PC22.	inspect and utilize CMVs/OMVs and ladder trolleys for OHE work	-	-	-	-
PC23.	identify and rectify common faults in CMVs to avoid delays	-	-	-	-
	<i>Neutral sections and ROCS system</i>	1.5	1.5	-	0.5
PC24.	inspect and ensure correct installation of neutral sections	-	-	-	-
PC25.	familiarize with ROCS components for efficient operation during transitions	-	-	-	-
	<i>OHE maintenance, foot patrolling, and routine checks</i>	1	1	-	0.5
PC26.	perform regular foot patrolling and visual inspections of OHE infrastructure	-	-	-	-
PC27.	document findings and schedule any required maintenance actions	-	-	-	-
	<i>Inspection of overlap types and components</i>	1	1	-	0.5
PC28.	inspect different overlap types (insulated, uninsulated, and multiple span configurations) to ensure continuity and insulation where required	-	-	-	-

	PC29. assess three-span and four-span overlaps for proper alignment, insulation, and structural stability	-	-	-	-
	<i>Auto Tensioning Device (ATD) and jumper specifications</i>	1.5	1.5	-	0.5
	PC30. inspect ATD systems and adjust settings (X and Y values) for temperature variation	-	-	-	-
	PC31. ensure proper installation and alignment of jumpers to support wire tension	-	-	-	-
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>	<i>1</i>	<i>3</i>	-	-
	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		120	130	-	50

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 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 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
RSS	Remote Sub-Station
PTW	Permit to Work
TPC	Traction Power Controller
OCC	Operations Control Center
CBs	Circuit Breakers
CT	Current Transformer
PT	Potential Transformer
LA	Lightning Arrestor
GIS	Gas Insulated Switchgear
BDV	Breakdown Voltage
DGA	Dissolved Gas Analysis
SAS	Substation Automation System
LVS	Low Voltage Switchgear
ROCS	Railway Overhead Catenary System
ATD	Auto Tensioning Device
DPR	Daily Progress Report
SHPK	Sub Head Post Kiln
CMV	Control and Monitoring Voltage
OMV	Operating and Monitoring Voltage
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