



QUALIFICATION FILE

Junior Engineer - Automatic Fare Collection and Telecom Systems (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.....	6
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)	12
Annexure 3: Industry Validations Summary	15
Annexure 4: Training & Employment Details	15
Annexure 5: Blended Learning	16
Annexure 6: Detailed Assessment Criteria	16
Annexure 7: Assessment Strategy	30
Annexure 8: Acronym and Glossary	32

Section 1: Basic Details

1.	Qualification Name	Junior Engineer - Automatic Fare Collection and Telecom Systems (Metro Rail)							
2.	Sector/s	Logistics							
3.	Type of Qualification: ☒ New ☐ Revised ☐ Has Electives/Options ☐ OEM	NQR Code & version of existing/previous qualification: (change to previous, once approved)	Qualification Name of existing/previous version: NA						
4.	a. OEM Name b. Qualification Name (Wherever applicable)	NA Junior Engineer - Automatic Fare Collection and Telecom Systems (Metro Rail)							
5.	National Qualification Register (NQR) Code &Version (Will be issued after NSQC approval)	QG-4.5-TW-04143-2025-V1-DMRCA	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 - Automatic Fare Collection and Telecom Systems (Metro Rail) is responsible for performing basic signalling operations, overseeing the installation, operation, and maintenance of Telecom and Automatic Fare Collection (AFC) systems. The role ensures system efficiency, compliance with safety standards, and effective team coordination to maintain uninterrupted metro 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 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: NA		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))	18	11. Common Cost Norm Category (I/II/III) (wherever applicable):						

12.	Any Licensing requirements for Undertaking Training on This Qualification <i>(wherever applicable)</i>	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>210</td> <td>210</td> <td>120</td> <td>-</td> <td>540</td> </tr> <tr> <td>Online</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <i>(Refer Blended Learning Annexure for details)</i>					Training Delivery Modes	Theory (Hours)	Practical (Hours)	OJT Mandatory (Hours)	OJT Recommended (Hours)	Total (Hours)	Classroom (offline)	210	210	120	-	540	Online					
Training Delivery Modes	Theory (Hours)	Practical (Hours)	OJT Mandatory (Hours)	OJT Recommended (Hours)	Total (Hours)																			
Classroom (offline)	210	210	120	-	540																			
Online																								
14.	Aligned to NCO/ISCO Code/s <i>(if no code is available mention the same)</i>	NCO-2015/NIL																						
15.	Progression path after attaining the qualification <i>(Please show Professional and Academic progression)</i>	Junior Engineer - Automatic Fare Collection and Telecom Systems (Metro Rail) (L4.5) → Engineer – Automatic Fare Collection and Telecom Systems (Metro Rail) (L 5.5)																						
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 Engineer – Automatic Fare Collection and Telecom Systems (Metro Rail) 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 <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 Website: https://dmra.delhimetrorail.com/ Contact No.: 99586 90650																						

23.	Final Approval Date by NSQC: 08-05-2025	24. Validity Duration: 3 Years post NSQC Approval	25. Next Review Date: 08-05-2028
-----	---	---	----------------------------------

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	20
2.	Conduct basic signalling operations	DMR/LSC/N0 203, v1.0	Core	4.5	3	30	30	30	-	90	20	20	-	10	50	20
3.	Execute telecom systems installation, operation, and maintenance	DMR/LSC/N0 204, v1.0	Core	4.5	7	60	90	60	-	210	20	20	-	10	50	30
4.	Operate and Monitor Automatic Fare Collection (AFC) Systems	DMR/LSC/N0 205, v1.0	Core	4.5	4	30	60	30	-	120	20	20	-	10	50	20
5.	Employability Skills (30 Hours)	DGT/VSQ/N0 101, v1.0	Non-Core	2.0	1	30	-	-	-	30	20	30	-	-	50	10
Duration (in Hours) / Total Marks					18	210	210	120	-	540	100	110	-	40	250	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) (as per NCVET guidelines)	Educational Qualification: Graduate in Electronics & Communication 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) (as per NCVET guidelines)	Educational Qualification: Graduate in Electronics & Communication 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 (If "Yes", details to be provided in Annexure)
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) (as per NCVET guidelines)	Educational Qualification: Graduate in Electronics & Communication 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) (as per NCVET guidelines)	Educational Qualification: Graduate in Electronics & Communication 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) (as per NCVET guidelines)	Educational Qualification: Graduate in Electronics & Communication 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 (Specify the assessment mode)	Offline/ Online
5.	Tools and Equipment Required for Assessment	☒ Same as for training ☐ Yes ☐ No (details to be provided in Annexure-if it is different for Assessment)

Section 5: Evidence of the need for the Qualification

Provide Annexure/Supporting documents name.

1.	Latest Skill Gap Study (not older than 2 years) (Yes/No): Yes
2.	Latest Market Research Reports or any other source (not older than 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: In Process 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 (Mandatory)	Annexure 1
2.	Annexure: List of tools and equipment relevant for qualification (Mandatory, except in case of online course)	Annexure 2
3.	Annexure: Detailed Assessment Criteria (Mandatory)	Annexure 6
4.	Annexure: Assessment Strategy (Mandatory)	Annexure 7

5.	Annexure: Blended Learning (Mandatory, in case selected Mode of delivery is "Blended Learning")	NA
6.	Annexure: Multiple Entry-Exit Details (Mandatory, in case qualification has multiple Entry-Exit)	NA
7.	Annexure: Acronym and Glossary (Optional)	Annexure 8
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 basic signalling operations - Control train movements with Interlocking, Point Machines, Signals, and Track Detection Devices. Monitor operations using ATS and ATP to ensure safety. - Manage electrical circuits, communication, infrastructure, and mechanical systems with Relays, Telecom, Civil, Traction, and E&M. Ensure smooth operations with Rolling Stock. - Oversee signaling and control systems as S&TC Junior Engineers. Gain practical knowledge through Visits to stations and operational centers. Oversee telecom systems installation, operation, and maintenance - Understand telecom systems and their communication media, including fiber optical and radio transmission. - Operate telephone and PIDS/PAS for efficient communication and announcements. - Monitor CCTV for security and clock systems for synchronized time management. - Manage networking systems to ensure seamless communication across all telecom infrastructure.	The Junior Engineer - Automatic Fare Collection and Telecom Systems (Metro Rail) must possess specialized knowledge of metro telecom systems, including installation, operation, maintenance, and troubleshooting of communication and control systems. The role requires a deep understanding of telecom infrastructure, such as fiber optical and radio transmission systems, telephone systems, PIDS/PAS, CCTV, and clock systems. The junior engineer must be well-versed in the Automatic Fare Collection (AFC) system, including its fare media, business rules, automatic gates, TOM, ticket issuing machines, and TR/AVM. The junior engineer is also responsible for overseeing Station Computers (SC), Central Computers (CC), and the Central Clearing House System (CCHS) for seamless data processing and AFC networking. In addition, the junior engineer must apply safety regulations, operational standards, and fault diagnosis principles to ensure efficient and uninterrupted telecom operations. The junior engineer is also required to ensure continuous learning through practical visits to stations and operational centers, while maintaining a focus on training, safety	4.5

	Manage telecom systems for Automatic Fare Collection (AFC) - Learn about the AFC System and its fare media and business rules. Understand how automatic gates, TOM, ticket issuing machines, and TR/AVM function. - Oversee Station Computers (SC), Central Computers (CC), and the Central Clearing House System (CCHS) for data processing to ensure smooth data flow through AFC networking. - Understand system components and troubleshooting by AFC Lab visit. Implement metro operations training and safety procedures - Familiarize with the training module, safety protocols, and store management and procurement processes. Gain knowledge of telecom, signaling, track, traction, SCADA, and E&M systems. - Review OCC and rolling stock operations. Concentrate on operations, customer care, and practical visits for hands-on experience. - Undertake first aid training, firefighting systems knowledge, and security protocols for metro systems. Study Metro Rail General Rules 2020, safety circulars, and contingency plans.	procedures, and emergency protocols such as first aid and firefighting systems. Hence, this role falls under Level 4.5.	
Professional and Technical Skills/ Expertise/ Professional Knowledge	- Know the basics of metro signalling concepts, CBTC, and S&T systems - Understand the principles and essentials of various interlocking systems (mechanical, RRI, SSI, CBI) - Know the principles of operation for track detection devices like track circuits and axle counters - Understand the features, advantages, and operational aspects of ATS and ATP - Understand the system interfacing of P-way, traction, E&M, and rolling stock with signalling - Understand the telecom system architecture, operations, and troubleshooting techniques - Know the tools and instruments (e.g. OTDR, power meters, splicing machines) for system installation and maintenance - Know the configuration and maintenance of SDH, PDH, and MPLS systems	A Junior Engineer - Automatic Fare Collection and Telecom Systems (Metro Rail) must have advanced technical skills in managing telecom systems, fare collection, and communication infrastructure for metro operations. They need expertise in metro signalling, CBTC, interlocking systems, track detection, and integration with P-way, traction, E&M, and rolling stock. The role requires proficiency in telecom troubleshooting, including SDH, PDH, MPLS, and the use of tools like OTDR and splicing machines. Knowledge of AFC system architecture, fare media, TOM, TVM, and security protocols is essential. They must ensure smooth operations of SC, CC, CCHS, AFC networking, and troubleshooting, ensuring efficient metro system performance. Therefore, it falls under Level 4.5.	4.5

	• Know the networking fundamentals, including VLANs and L2/L3 devices • Know the hardware components and connectivity of telephone, PIDS, PAS, CCTV, and clock systems • Understand the AFC system architecture and operational objectives • Understand the different Types of fare media (e.g., NCMC, QR, tickets) • Know the functionalities of TOM, TVM, and smart card vending machines • Understand the data storage, security protocols, and passenger information displays • Understand the functional requirements of SC, CC, and CCHS • Know the network configurations and troubleshooting techniques in AFC networking • Know the practical handling and troubleshooting of AFC components		
Employment Readiness & Entrepreneurship Skills & Mind-set/Professional Skill	• Identify and use signalling terminologies during maintenance and operation tasks • Inspect various S&T systems used in DMRC for proper functioning • Oversee signalling operations within the depot environment • Inspect points and crossings to ensure alignment and safety during train movement • Install, inspect, and maintain signals from semaphore to colour light systems • Oversee the duties of S&TC staff to ensure compliance with operational standards • Inspect fiber optic transmission systems for faults and ensure smooth communication • Inspect equipment in the signalling equipment room to ensure compliance with standards • Identify different types of electrical cables (e.g., copper cables) their properties and applications • Inspect and confirm the architecture and channel distribution of optical fiber media • Execute setup and functional tests of RCW and	Junior Engineer - Automatic Fare Collection and Telecom Systems (Metro Rail) is expected to demonstrate advanced technical expertise in overseeing the operation, maintenance, and troubleshooting of metro signalling systems, telecom infrastructure, and AFC components. They must be proficient in identifying and using signalling terminologies during maintenance tasks, inspecting various S&T systems for proper functioning, and ensuring alignment and safety of points and crossings during train movement. Junior engineers should oversee the installation, inspection, and maintenance of signals, including semaphore and colour light systems, while ensuring compliance with operational standards. Additionally, they must inspect telecom systems, including fiber optic transmission, IPBX hardware, and AFC components such as ticket vending machines, fare media, and gates, ensuring smooth system integration and performance. Their ability to monitor and validate system configurations, troubleshoot issues, and implement effective safety protocols ensures that operations run efficiently while maintaining high safety standards. This role requires a high level of technical proficiency, making it suitable for Level 4.5.	4.5

	- radio base station systems (BTS/MTS-4) - monitor and validate the configuration of MSO and CDRS systems for connectivity and performance - Perform inspections and verify interconnectivity of IPBX hardware at station and OCC levels - Monitor connectivity and functionality of PIDS and PAS components - Identify and differentiate types of fare media and fare products, such as tickets, NCMC, and QR code - Identify the components and functionalities of ticket vending machines (TVMs), smart card vending machines, and recharge card terminal machines		
Broad Learning Outcomes/Core Skill	- Carry out the practical skills and competencies required to execute, monitor, and maintain signalling systems and their interfacing components in metro rail operations. - Carry out efficient ways to execute, monitor, and maintain telecom systems for efficient operation, system integrity, and optimal performance. - Carry out how to oversee the operation, maintenance, and troubleshooting of Automatic Fare Collection (AFC) systems. - Carry out implementing structured training and safety measures for metro operations, ensuring technical knowledge, system readiness, and emergency preparedness.	At Level 4.5, Junior Engineer - Automatic Fare Collection and Telecom Systems (Metro Rail) is expected to demonstrate a comprehensive set of skills in managing telecom systems, Automatic Fare Collection (AFC) systems, and related components in metro operations. They should proficiently execute, monitor, and maintain signalling systems, telecom infrastructure, and AFC systems, ensuring seamless operations and optimal system performance. The junior engineer must also apply effective troubleshooting techniques to ensure the integrity of AFC systems and related components. Additionally, they should oversee structured training and safety measures for metro operations, ensuring staff are equipped with necessary technical knowledge and are prepared for emergency situations. Strong documentation, communication, and team coordination skills are crucial to maintaining operational efficiency and compliance with safety standards.	4.5
Responsibility	- Training Module Overview - Safety Overview - Overview of Telecom and Signalling - Practical Visits - First Aid Training - Fire Fighting Systems - Security in Metro Systems - Metro Rail General Rules 2020	A Junior Engineer - Automatic Fare Collection and Telecom Systems (Metro Rail) is responsible for performing basic signalling operations, overseeing the installation, operation, and maintenance of telecom systems and Automatic Fare Collection (AFC). The role ensures system efficiency, compliance with safety standards, and effective team coordination to maintain uninterrupted metro operations.	4.5

	• Safety Circulars and Contingency Plans • General/PSD • Interlocking • Point Machine • Signal • Track Detection Devices • Automatic Train Supervision (ATS) • Automatic Train Protection (ATP) • Relays • Duties of S&TC Junior Engineers • Telecom • Civil • Traction • E&M • Rolling Stock • Visits • Introduction to Telecom Systems • Communication Media • Fiber Optical Transmission System • Radio System • Telephone System • PIDS & PAS • Closed Circuit Television System (CCTV) • Clock System • Networking System • Introduction to AFC System • Fare Media & Business Rule • Automatic Gates • Ticket Office Machine (TOM) • Ticket Issuing Machines • Ticket Reader/Add Value Machine (TR/AVM) • Station Computer (SC) • Central Computer (CC) & Central Clearing House System (CCHS) • AFC Networking • AFC Lab Visit		
--	---	--	--

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.	Alignment Screwdriver	No.	01
2.	Combination Plier 8"	No.	01
3.	Nose Plier 8"	No.	01
4.	Wire Stripper	No.	01
5.	Adjustable wrench	No.	01
6.	Double end Spanner set	No.	01
7.	Tweezer (Sharp Nose)	No.	01
8.	Krone tool	No.	01
9.	Ratchet Handel 1/2	No.	01
10.	Ratchet Socket set (19,17,14,11 mm)	No.	01
11.	Star Key Set T-10 to T-50	No.	01
12.	T Handle Box Spanner 8	No.	01
13.	T Handle Box Spanner 10	No.	01
14.	T Handle Box Spanner 13	No.	01
15.	Brush 50 MM Nylon Bristle	No.	01
16.	Allen Key Set	No.	01
17.	Screw driver set 831 (8 bits)	No.	01
18.	Crimping Tools RJ4/5 RJ11 /RJ08	No.	01
19.	Wrapping tool	No.	01
20.	Line tester	No.	01
21.	LAN tester	No.	01
22.	Digital multimeter	No.	01
23.	OTDR	No.	01
24.	Optical Power Meter	No.	01
25.	Optical Source Meter	No.	01
26.	Fiber Splicing Machine	No.	01
27.	E1 Data Tester	No.	01
28.	RJ-45 connector	No.	01
29.	RJ-11 connector	No.	01
30.	Safety Harness, PPE Kit	No.	01

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 DMRA & DMRC Metro Stations	60:40
6	☐ Proctored Monitoring/ Assessment/ Evaluation/ Examinations	Online Examination in DMRA 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>	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. coordinate degraded mode operations, including train movement during interlocking failures	-	-	-	-
PC44. coordinate 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. follow procedures for negotiating neutral sections, dealing with pantograph failures, and monitoring Panto-OHE interface cameras	-	-	-	-

	PC47. coordinate 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 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/N0203: Conduct basic signalling operations	<i>General/PSD</i>	<i>6</i>	<i>6</i>	<i>-</i>	<i>3</i>
	PC1. familiarize with the role of the S&T department in metro operations	-	-	-	-
	PC2. monitor signalling systems to ensure smooth metro operations	-	-	-	-
	PC3. identify and use signalling terminologies during maintenance and operation tasks	-	-	-	-
	PC4. inspect various S&T systems used in DMRC for proper functioning	-	-	-	-
	PC5. operate the Communication-Based Train Control (CBTC) system following the applicable procedure	-	-	-	-
	PC6. test the integration and functionality of Platform Screen Doors (PSD) in metro stations	-	-	-	-
	PC7. apply the system of working protocols in signalling operations	-	-	-	-
	PC8. check signalling operations within the depot environment	-	-	-	-
	PC9. install and interpret markers and indicators for train operations	-	-	-	-
	PC10. analyze overlap, isolation, and sighting distances as per operational requirements	-	-	-	-

PC11. check for Schedule of Dimensions (SOD) compliance for signalling-related installations	-	-	-	-
PC12. prepare and interpret control tables for signalling operations	-	-	-	-
<i>Interlocking</i>	<i>1</i>	<i>1</i>	<i>-</i>	<i>0.5</i>
PC13. execute interlocking procedures to ensure safe train operations	-	-	-	-
PC14. compare mechanical, RRI, SSI, and CBI interlocking systems for specific operational needs	-	-	-	-
<i>Point Machine</i>	<i>1</i>	<i>1</i>	<i>-</i>	<i>0.5</i>
PC15. operate and calibrate point machines for optimal performance	-	-	-	-
PC16. examine points and crossings to ensure alignment and safety during train movement	-	-	-	-
<i>Signal</i>	<i>1</i>	<i>1</i>	<i>-</i>	<i>0.5</i>
PC17. install, inspect, and maintain signals from semaphore to colour light systems	-	-	-	-
<i>Track Detection Devices</i>	<i>1</i>	<i>1</i>	<i>-</i>	<i>0.5</i>
PC18. install and maintain train detection devices, including track circuits and axle counters	-	-	-	-
PC19. operate track circuits and axle counters for detection	-	-	-	-
<i>Automatic Train Supervision (ATS)</i>	<i>1</i>	<i>1</i>	<i>-</i>	<i>0.5</i>
PC20. operate Automatic Train Supervision (ATS) systems for CBTC and Non-CBTC environments	-	-	-	-
PC21. simulate train operations on CBTC and Non-CBTC ATS systems to understand functionalities	-	-	-	-
<i>Automatic Train Protection (ATP)</i>	<i>1</i>	<i>1</i>	<i>-</i>	<i>0.5</i>
PC22. perform operational checks for different grades of ATP to ensure safe train movement	-	-	-	-
<i>Relays</i>	<i>1</i>	<i>1</i>	<i>-</i>	<i>0.5</i>
PC23. install, test, and maintain relays used in signalling systems	-	-	-	-

	<i>Duties of S&TC Junior Engineers</i>	1	1	-	0.5
	PC24. carry out general maintenance activities while adhering to safety protocols	-	-	-	-
	PC25. coordinate with the S&TC staff to ensure compliance with operational standards	-	-	-	-
	<i>Telecom</i>	1	1	-	0.5
	PC26. test telecom systems for proper interfacing with signalling equipment	-	-	-	-
	PC27. operate emergency communication systems in coordination with signalling functions	-	-	-	-
	PC28. inspect fiber optic transmission systems for faults and ensure smooth communication	-	-	-	-
	PC29. set up and monitor networking systems relevant to signalling operations	-	-	-	-
	<i>Civil</i>	1	1	-	0.5
	PC30. coordinate with P-way teams to ensure proper interfacing with signalling systems	-	-	-	-
	<i>Traction</i>	1	1	-	0.5
	PC31. inspect and test OHE systems interfacing with signalling for operational efficiency	-	-	-	-
	PC32. apply safety practices for OHE operations to ensure signalling reliability	-	-	-	-
	<i>E&M</i>	1	1	-	0.5
	PC33. monitor the interfacing of lifts and escalators with signalling systems	-	-	-	-
	PC34. inspect and test SCADA and TVS systems for proper interfacing with signalling equipment	-	-	-	-
	<i>Rolling Stock</i>	1	1	-	0.5
	PC35. verify the integration of rolling stock with CBTC and Non-CBTC systems for compatibility	-	-	-	-
	PC36. operate train CCTV systems to ensure effective interfacing with signalling systems	-	-	-	-
	<i>Visits</i>	1	1	-	0.5

	PC37. check equipment in the signalling equipment room to ensure compliance with the applicable standards	-	-	-	-
	PC38. observe and report operations at the depot control center for process optimization	-	-	-	-
	PC39. monitor signalling functions at stations to ensure reliability and safety	-	-	-	-
	PC40. analyze the operational processes during visits to FMC and Central ATS to identify improvement opportunities	-	-	-	-
	Total Marks	20	20	-	10
DMR/LSC/N0204: Execute telecom systems installation, operation, and maintenance	<i>Introduction to Telecom Systems</i>	<i>2</i>	<i>2</i>	-	<i>0.5</i>
	PC1. interpret the telecom system architecture and communication networks	-	-	-	-
	PC2. familiarize with the telecom system and components through a station visit	-	-	-	-
	<i>Communication Media</i>	<i>2</i>	<i>2</i>	-	<i>1.5</i>
	PC3. identify different types of electrical cables (e.g., copper cables,)their properties and applications	-	-	-	-
	PC4. examine and confirm the architecture and channel distribution of optical fiber media	-	-	-	-
	PC5. monitor the implementation and integration of wireless communication networks	-	-	-	-
	PC6. identify and handle various types of cables safely	-	-	-	-
	<i>Fiber Optical Transmission System</i>	<i>5</i>	<i>5</i>	-	<i>3</i>
	PC7. operate tools to demonstrate light transmission through fiber optics and explain its applications	-	-	-	-
	PC8. examine optical fiber structure in metro systems for integrity	-	-	-	-
	PC9. handle splicing tools, following the applicable safe handling procedures				
	PC10. monitor OTDR, power meters, and source meters for operational accuracy	-	-	-	-
	PC11. execute splicing operations and validate connections using OTDR and power meters	-	-	-	-

PC12.	set up and test SDH and PDH systems for telecommunication applications	-	-	-	-
PC13.	monitor SDH access and alarms, troubleshoot failures, and document corrective actions	-	-	-	-
PC14.	configure MPLS systems for channel creation, alarm monitoring, and troubleshooting	-	-	-	-
PC15.	evaluate SDH systems to MPLS for performance and scalability	-	-	-	-
	<i>Radio System</i>	2	2	-	1.5
PC16.	monitor the deployment and operation of wireless communication systems, including TETRA	-	-	-	-
PC17.	perform functional tests on RAU and hand-portable systems to ensure reliability	-	-	-	-
PC18.	operate and test train radio systems and validate sub-module functionality	-	-	-	-
PC19.	perform functional tests of RCW and radio base station systems (BTS/MTS-4)	-	-	-	-
PC20.	monitor the current configuration of MSO and CDRS systems for connectivity and performance	-	-	-	-
	<i>Telephone System</i>	2	2	-	0.5
PC21.	operate and test telephone system interfaces and connectivity in both conventional and IP-based setups	-	-	-	-
PC22.	check and verify interconnectivity of IPBX hardware at station and OCC levels	-	-	-	-
PC23.	execute system checks on telephone hardware used in the DMRC network	-	-	-	-
	<i>PIDS & PAS</i>	2	2	-	0.5
PC24.	operate and validate Passenger Information Display System (PIDS) and Public Announcement System (PAS) for real-time and scheduled information broadcasting	-	-	-	-
PC25.	perform system checks on PIDS and PAS hardware at central and station levels	-	-	-	-
PC26.	monitor connectivity and functionality of PIDS and PAS components	-	-	-	-
	<i>Closed Circuit Television System (CCTV)</i>	2	2	-	0.5
PC27.	perform functionality checks on central and station-level CCTV systems	-	-	-	-

	PC28. perform connectivity tests to ensure proper integration of station and OCC-level CCTV systems	-	-	-	-
	PC29. monitor CCTV hardware and troubleshoot system issues	-	-	-	-
	<i>Clock System</i>	1	1	-	0.5
	PC30. check synchronization of master and sub-master clock systems for operational accuracy	-	-	-	-
	PC31. inspect and validate the interconnectivity between sub-master and slave clocks	2	2	-	1.5
	<i>Networking System</i>	-	-	-	-
	PC32. perform system checks on networking hardware, cables, and connectors for operational readiness	-	-	-	-
	PC33. check synchronization of master and sub-master clock systems for operational accuracy	-	-	-	-
	PC34. monitor and ensure interconnectivity of AFC and telecom networking hardware at station and OCC levels	-	-	-	-
	PC35. perform practical configurations of L2 and L3 switches to meet system requirements	-	-	-	-
	Total Marks	20	20	-	10
	DMR/LSC/N0205: Operate and Monitor Automatic Fare Collection (AFC) Systems				
	<i>Introduction to AFC System</i>	2	2	-	2
	PC1. familiarize with AFC systems through station visits, ensuring complete understanding of system layout and functionality	-	-	-	-
	PC2. analyze the AFC architecture, communication network, and its operational objectives	-	-	-	-
	<i>Fare Media & Business Rule</i>	4	4	-	3
	PC3. identify and differentiate types of fare media and fare products, such as tickets, NCMC, and QR code	-	-	-	-
	PC4. demonstrate the use of NCMC and QR fare media at the Operations Control Center (OCC) and station levels	-	-	-	-
	PC5. operate store-value and app-based ticketing systems to manage metro fare collection				

PC6.	monitor the implementation of business rules in practical scenarios and ensure compliance				
<i>Automatic Gates</i>		2	2	-	1
PC7.	monitor the operational modes and fare modes of AFC gates, ensuring alignment with passenger detection systems and design parameters	-	-	-	-
PC8.	check gate components, including sensors and barriers, for connectivity and functionality	-	-	-	-
PC9.	familiarize with AFC gates to understand their functionality and troubleshooting needs				
<i>Ticket Office Machine (TOM)</i>		2	2	-	1
PC10.	check and validate the security, data storage, and integrity of TOM/EFO modules	-	-	-	-
PC11.	familiarize with passenger information display systems and receipt printer functionality within TOM/EFO	-	-	-	-
<i>Ticket Issuing Machines</i>		2	2	-	0.5
PC12.	identify the components and functionalities of ticket vending machines (TVMs), smart card vending machines, and recharge card terminal machines	-	-	-	-
PC13.	familiarize with the operation of ticket issuing and recharge machines at stations	-	-	-	-
<i>Ticket Reader/Add Value Machine (TR/AVM)</i>		2	2	-	0.5
PC14.	operate TR/AVMs for web-based recharge provisions and demonstrate their practical applications at stations	-	-	-	-
PC15.	ensure TR/AVM functionalities comply with business rules	-	-	-	-
<i>Station Computer (SC)</i>		1	1	-	0.5
PC16.	monitor data collection, status reporting, and parameter distribution through station computers	-	-	-	-
PC17.	familiarize with SC reports, major components, and software requirements	-	-	-	-
<i>Central Computer (CC) & Central Clearing House System (CCHS)</i>		2	2	-	0.5

	PC18. utilize CC/CCHS software for clock management, data distribution, and system reporting	-	-	-	-
	PC19. familiarize with central systems at the OCC level	-	-	-	-
	<i>AFC Networking</i>	2	2	-	0.5
	PC20. monitor AFC network configurations and ensure proper data flow between components	-	-	-	-
	PC21. execute practical demonstrations of AFC networking concepts	-	-	-	-
	<i>AFC Lab Visit</i>	1	1	-	0.5
	PC22. conduct visit to AFC lab to enhance hands-on experience with system components and troubleshooting techniques	-	-	-	-
	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	100	110	-	40
-------------	-----	-----	---	----

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 DMRA. 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