QUALIFICATION FILE

Telecom Tower Site Maintenance Technician

☒ **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: 4.0

Submitted By:

Telecom Sector Skill Council

3rd Floor, Plot No 126, Sector – 44 Gurgaon – 122003

Email: tssc@tsscindia.com

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Section 1: Basic Details

1.	**Qualification Name**	Telecom Tower Site Maintenance Technician	
2.	**Sector/s**	Telecom	
3.	**Type of Qualification:** ☐ **New** ☒ **Revised** ☐ **Has Electives/Options** ☐ **OEM**	**NQR Code & version of existing/previous qualification:** *(2022/TEL/TSSC/07007, V4.0)*	**Qualification Name of existing/previous version:** Tower Technician
4.	a. **OEM Name** b. **Qualification Name** *(Wherever applicable)*		
5.	**National Qualification Register (NQR) Code &Version** *(Will be issued after NSQC approval)*	QG-04-TL-04075-2025-V2-TSSC	**6. NCrF/NSQF Level:** *4.0*
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 Telecom Tower Site Maintenance Technician is responsible for ensuring the continuous operation of the telecom tower site by performing Level-1 fault repairs, conducting corrective and preventive maintenance, and reporting issues to the supervisor. Additionally, the individual oversees energy and estate management at Level-1 and verify site assets.	
9.	**Eligibility Criteria for Entry for Student/Trainee/Learner/Employee**	a. **Entry Qualification & Relevant Experience:**	

S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)
1.	12th Grade Pass	
2.	Completed 2nd year of the 3-year diploma after 10th in Electronics and Communication Engineering/ Electrical Engineering/ Telecommunication Engineering	
3.	10th Grade Pass	3 years of experience in the operations and maintenance of passive infrastructure
4.	Previous relevant Qualification of NSQF Level 3.0	3 years of experience in the operations and maintenance of passive infrastructure
5.	Previous relevant Qualification of NSQF Level 3.5	1.5 years of experience in the operations and maintenance of passive infrastructure

		b. **Age:** NA
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** *(Specify **Total Duration** as per selected training delivery modes and as per requirement of the qualification)*

☐Offline   ☐Online   ☒Blended

Training Delivery Modes	Theory (Hours)	Practical (Hours)	OJT Mandatory (Hours)	OJT Recommended (Hours)	Total (Hours)
Classroom (offline)	150	210	150		510
Online	150				

(Refer Blended Learning Annexure for details)

14.	**Aligned to NCO/ISCO Code/s** *(if no code is available mention the same)*	NCO-2015/7422.3001
15.	**Progression path after attaining the qualification** *(Please show Professional and Academic progression)*	Telecom Tower Site Maintenance Technician (NSQF Level 4) → Telecom Tower Site Maintenance Supervisor (NSQF Level 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:** *Motor Impairment, Hearing Impairments, Speech and Language Disorders*
19.	**How Participation of Women will be Encouraged**	Encouraging the participation of women in the role of Telecom Tower Site Maintenance Technician in the telecom sector can be achieved through strategies that foster diversity, inclusivity, and gender equality. This can include offering targeted training and skill development programs for female candidates interested in these roles. Additionally, creating a workplace culture that is safe, respectful, and inclusive, and free from harassment or discrimination, is crucial for ensuring equal opportunities for women in the telecom sector.
20.	**Are Greening/ Environment Sustainability Aspects Covered** *(Specify the NOS/Module which covers it)*	☒ Yes ☐ No **NOS: TEL/N9109**
21.	**Is Qualification Suitable to be Offered in Schools/Colleges**	Schools ☐ Yes ☐ No Colleges ☒ Yes ☐ No

| 22. | **Name and Contact Details of Submitting / Awarding Body SPOC**
(In case of CS or MS, provide details of both Lead AB & Supporting ABs) | **Name: Mr. Praveen Sirohi**
Email: ceo@tsscindia.com
Website: www.tsscindia.com | **Contact No.: 0124-4148029** |
| 23. | **Final Approval Date by NSQC:** *08-05-2025* | **24. Validity Duration: 3 years** | **25. Next Review Date:** *30-04-2028* |

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.	Maintain tower site and report periodically	TEL/N4138, v3.0	Core	4.0	8	60	120	60	-	240	30	50	-	20	100	40
2.	Manage site operation safely and hygienically	TEL/N4139, v3.0	Core	4.0	7	50	70	90	-	210	30	50	-	20	100	30
3.	Follow sustainable practices in telecom infrastructure management	TEL/N9109, v1.0	Core	4.0	1	10	20	-	-	30	30	50	-	20	100	20
4.	Employability Skills (30 Hours)	DGT/VSQ/N 0101, v1.0	Non-Core	2.0	1	30	-	-	-	30	20	30	-	-	50	10
Duration (in Hours) / Total Marks					17	150	210	150	-	510	110	180	-	60	350	100

Assessment - Minimum Qualifying Percentage
*Please specify **any one** of the following:*

Minimum Pass Percentage – Aggregate at qualification level: __70__ % *(Every Trainee should score specified minimum aggregate passing percentage at qualification level to successfully clear the assessment.)*

Minimum Pass Percentage – NOS/Module-wise: __-__ % *(Every Trainee should score specified minimum passing percentage in each mandatory and selected elective NOS/Module to successfully clear the assessment.)*

Section 3: Training Related

1.	**Trainer's Qualification and experience in the relevant sector (in years)** *(as per NCVET guidelines)*	**Educational Qualification:** Graduate in any discipline, preferably Electronics and Communication /Telecom/ Information Technology/ Computer Science and other relevant fields. **Industry & Training Experience:** Minimum 6 years of experience after Graduation in Tower Maintenance. **Certification:** "Trainer" mapped to the Qualification Pack "MEP/Q2601, v3.0". 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 any discipline, preferably Electronics and Communication /Telecom/ Information Technology/ Computer Science and other relevant fields. **Industry & Training Experience:** Minimum 8 years of experience after Graduation in Tower Maintenance. **Certification:** "Master Trainer" mapped to the Qualification Pack "MEP/Q2602, v3.0". 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 any discipline, preferably Electronics and Communication /Telecom/ Information Technology/ Computer Science and other relevant fields. **Industry & Training Experience:** Minimum 6 years of experience after Graduation in Tower Maintenance. **Certification:** "Assessor" mapped to the Qualification Pack "MEP/Q2701, v3.0". 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 any discipline, preferably Electronics and Communication /Telecom/ Information Technology/ Computer Science and other relevant fields. **Industry & Training Experience:** Minimum 6 years of experience after Graduation in Tower Maintenance. **Certification:** "Assessor" mapped to the Qualification Pack "MEP/Q2701, v3.0". 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 any discipline, preferably Electronics and Communication /Telecom/ Information Technology/ Computer Science and other relevant fields.

		Industry & Training Experience: Minimum 8 years of experience after Graduation in Tower Maintenance.
		Certification: "Lead Assessor" mapped to the Qualification Pack "MEP/Q2702, v3.0" 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):** NA
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:** 21
5.	**Estimated nos. of persons to be trained and employed:** 2600
6.	**Evidence of Concurrence/Consultation with Line Ministry/State Departments:** *approved* 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:**	*N0*	

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	**Maintain tower site and report periodically** • Perform preventive maintenance at the tower site • Perform corrective maintenance of equipment • Monitor site power and energy efficiency • Prepare and submit reports **Manage site operation safely and hygienically** • Ensure regular site upkeep • Maintain safety and hygiene of the site • Monitor alarms and infrastructure sensors • Oversee site administration **Follow sustainable practices in telecom infrastructure management** • Manage hazardous and e-waste at telecom sites • Adopt green energy and resource efficiency practices • Follow waste reduction strategies • Ensure compliance with environmental regulations	A Telecom Tower Site Maintenance Technician at NSQF Level 4 is responsible for maintaining, monitoring, and managing telecom tower sites to ensure seamless network operations. Key responsibilities include performing preventive and corrective maintenance of site equipment, monitoring power systems, and optimizing energy efficiency. The role involves regular site upkeep, ensuring safety, hygiene, and infrastructure administration. Technicians monitor alarms and sensors, addressing issues promptly to maintain site functionality. Compliance with environmental regulations ensures eco-friendly practices in telecom infrastructure management. With expertise in tower site operations, maintenance techniques, and sustainable practices, the Telecom Tower Site Maintenance Technician ensures reliable network performance while promoting environmental responsibility.	4.0
Professional and Technical Skills/ Expertise/ Professional Knowledge	• Know how to perform preventive and corrective maintenance of telecom tower site equipment to ensure uninterrupted network operations. • Understand power management principles, including energy efficiency measures, power backup systems, and site power monitoring techniques.	A Telecom Tower Site Maintenance Technician requires a combination of theoretical knowledge and hands-on expertise to maintain, monitor, and manage telecom tower sites. Responsibilities include performing preventive and corrective maintenance, monitoring power systems, optimizing energy efficiency, and ensuring site safety and hygiene. The role also involves diagnosing and troubleshooting network and	4.0

- Know how to prepare and submit periodic reports on site maintenance, equipment performance, power consumption, and operational issues.
- Understand the importance of maintaining site safety, hygiene, and overall infrastructure upkeep to comply with industry standards.
- Know how to monitor alarms, sensors, and other critical infrastructure components to promptly detect and address issues, ensuring network reliability.
- Understand telecom site administration, including compliance with operational standards, documentation requirements, and inventory management.
- Know how to manage hazardous and electronic waste at telecom sites in compliance with environmental regulations and sustainability guidelines.
- Understand sustainable practices, including green energy adoption, waste reduction strategies, and resource efficiency in telecom infrastructure management.
- Know how to ensure compliance with environmental, health, and safety regulations to maintain a secure and eco-friendly telecom site.
- Understand the functioning and maintenance of telecom equipment, including rectifiers, batteries, generators, and cooling systems.
- Know how to use diagnostic tools and software to analyze and troubleshoot network and equipment failures efficiently.
- Understand load balancing and power distribution techniques to optimize energy usage and reduce operational costs.
- Know how to perform site audits, risk assessments, and quality checks to ensure compliance with industry best practices.
- Understand emergency response protocols, including fire safety, first aid, and disaster recovery planning for telecom

equipment failures using diagnostic tools, managing alarms and sensors, and ensuring compliance with telecom infrastructure standards.

Technicians must adhere to safety and environmental protocols, including hazardous and e-waste management, green energy adoption, and compliance with sustainability regulations. They are responsible for implementing security measures, conducting site audits, and ensuring operational efficiency through remote monitoring systems and automation technologies.

By demonstrating technical proficiency, problem-solving skills, and adherence to industry best practices, this role aligns with NSQF Level 4, emphasizing autonomy and specialized expertise in telecom tower maintenance and infrastructure management.

	sites.		
	• Know how to implement security measures to prevent unauthorized access, theft, and vandalism at telecom tower sites.		
	• Understand industry regulations, licensing requirements, and telecom infrastructure policies to maintain legal compliance.		
	• Know how to work with stakeholders, vendors, and telecom service providers to coordinate maintenance and upgrade activities.		
	• Understand remote monitoring systems, IoT-based site management tools, and automation technologies for efficient site operations.		
	• Know how to conduct training and awareness programs for site personnel on safety, maintenance, and environmental sustainability practices.		
Employment Readiness & Entrepreneurship Skills & Mind-set/Professional Skill	• Select appropriate tools, equipment, and techniques for telecom tower maintenance and troubleshooting. • Develop strategies for preventive and corrective maintenance to enhance site efficiency and reliability. • Identify potential risks, hazards, and inefficiencies in tower site operations and implement mitigation measures. • Design site management plans incorporating safety, energy efficiency, and environmental sustainability. • Define standard operating procedures (SOPs) for telecom site maintenance, safety compliance, and reporting. • Apply problem-solving techniques to diagnose, repair, and optimize telecom equipment performance. • Implement safety protocols and emergency response procedures to prevent accidents and ensure a secure working environment. • Ensure compliance with telecom industry regulations, environmental policies, and workplace safety standards. • Analyze site performance metrics, power consumption, and maintenance records to improve operational efficiency.	Employment readiness and entrepreneurship skills for a Telecom Tower Site Maintenance Technician focus on technical expertise, site management, and professional growth. Technicians must select appropriate tools, analyze site performance, and implement systematic approaches for maintaining, troubleshooting, and optimizing telecom tower operations. They should ensure network reliability, adhere to safety and environmental regulations, and enhance energy efficiency through sustainable practices. Understanding regulatory compliance, risk management, and emerging telecom technologies is essential for maintaining industry standards. By defining maintenance strategies, enhancing problem-solving skills, and fostering an entrepreneurial mindset, technicians can advance their careers, explore self-employment opportunities, and contribute to innovation in telecom infrastructure management. Therefore, this role is classified at NSQF Level 4.	4.0

	• Optimize energy usage by integrating green energy solutions and resource-efficient technologies. • Monitor alarms, sensors, and remote tracking systems to ensure real-time issue detection and resolution. • Execute proper hazardous and e-waste disposal practices in line with environmental sustainability guidelines. • Coordinate with vendors, service providers, and stakeholders to manage site administration and maintenance contracts. • Demonstrate effective communication skills for reporting, documentation, and collaboration with technical teams. • Foster an entrepreneurial mindset by identifying opportunities for process improvement, cost reduction, and innovation in telecom infrastructure management. • Adapt to technological advancements and industry trends to enhance professional growth and job readiness. • Train and mentor junior technicians on best practices, safety procedures, and sustainable site management. • Maintain a proactive approach to learning and skill development to stay competitive in the telecom industry.		
Broad Learning Outcomes/Core Skill	The Broad Learning Outcomes/Core Skill are: • Demonstrate proficiency in preventive and corrective maintenance of telecom tower equipment to ensure uninterrupted network operations. • Apply troubleshooting techniques to diagnose and resolve faults in power systems, network infrastructure, and site equipment. • Ensure compliance with telecom industry standards, safety protocols, and environmental regulations. • Utilize diagnostic tools and remote monitoring systems for real-time performance tracking and fault detection. • Implement energy efficiency strategies, including green energy solutions and optimized power	The Telecom Tower Site Maintenance Technician role at NSQF Level 4 requires a combination of technical expertise and problem-solving skills to maintain, troubleshoot, and optimize telecom tower operations. Technicians must perform routine and complex tasks, including preventive and corrective maintenance, power system monitoring, fault identification, and network infrastructure management, ensuring compliance with safety and environmental regulations. They should demonstrate proficiency in handling diagnostic tools, remote monitoring systems, and site administration while adhering to standard operating procedures. Additionally, the role involves selecting appropriate maintenance strategies, ensuring energy efficiency, and following sustainability practices such as hazardous waste management and green energy adoption.	4.0

	management. • Manage hazardous and e-waste disposal as per environmental sustainability guidelines. • Monitor alarms, sensors, and infrastructure health to maintain seamless telecom site operations. • Maintain safety, hygiene, and security measures to prevent unauthorized access and workplace hazards. • Prepare accurate reports on site performance, maintenance activities, and compliance adherence. • Develop effective communication skills for collaboration with technical teams, vendors, and stakeholders. • Demonstrate problem-solving skills to optimize telecom site efficiency and reduce downtime. • Adapt to new telecom technologies and industry advancements for continuous professional development. • Cultivate an entrepreneurial mindset by identifying efficiency improvements and exploring self-employment opportunities in telecom infrastructure management.	Working under structured processes, technicians contribute to efficient telecom site operations. Their role aligns with NSQF Level 4, emphasizing hands-on expertise, systematic problem-solving, and adherence to industry standards in a familiar work environment.	
Responsibility	**The responsibilities are:** • Perform preventive maintenance at the tower site • Perform corrective maintenance of equipment • Monitor site power and energy efficiency • Prepare and submit reports • Ensure regular site upkeep • Maintain safety and hygiene of the site • Monitor alarms and infrastructure sensors • Oversee site administration • Manage hazardous and e-waste at telecom sites • Adopt green energy and resource efficiency practices • Follow waste reduction strategies	A Telecom Tower Site Maintenance Technician is responsible for ensuring the continuous operation of the telecom tower site by performing Level-1 fault repairs, conducting corrective and preventive maintenance, and reporting issues to the supervisor. Additionally, the individual oversees energy and estate management at Level-1 and verify site assets.	4.0

	• Ensure compliance with environmental regulations	

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.	Smps	Pieces	1
2.	Power Distrubution Panel/Power Management Unit	Pieces	1
3.	Fire Extinguishers	Pieces	1
4.	Earth Pits	Pieces	1
5.	DG set	Pieces	1
6.	Battery Banks	Pieces	1
7.	Air Conditioning Unit	Pieces	1

Classroom Aids

The aids required to conduct sessions in the classroom are:

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

Annexure 3: Industry Validations Summary

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

S. No	Organization Name	Representative Name	Designation	Contact Address	Contact Phone No	E-mail ID	LinkedIn Profile *(if available)*
1.	Ibus Network and infrastructure Pvt.Ltd.	TK Narayanan	Deputy General Manager Commercial	7th Floor Tower B, Vatika Towers Golf Crouse Road		tk.narayanan@ibusnetworks.com	

			Sector 54 Gurugram, Haryana India 122011		
2.	ICAII Computer & IT Skill Enhancement Institute (ICSE)	Er. Kamaljeet Kumar Sharma	Managing Director	#2266 (Site No. 24), Phase 7/Sector 61, S.A.S Nagar (Mohali) 160062, Punjab (India)	contact@icseinstitute.com kksmhl@gmail.com
3.	JRS Global Networks Pvt.Ltd.	Arvind Yadav	Asst. Account Manager Telecom	A 22, Sector-65 Noida, UP-201307	account3@jrsgl.com
4.	Expert Consultant & Coach for Telecom Fibre Optics, FTTx and Broadband	Dr. Anuj Shrivastava	Ex Executive Director Indian Telecom Services	Ghaziabad, UP	srianujkumar@gmail.com
5.	Jio Platforms Limited (Jio)	Abhijay Singh Sisodia	Senior Manager	Office-101, Saffron, Nr.Centre Point, Panchwati 5 Rasta, Ambawadi, Ahmedabad-380006 Gujarat	abhijay.sisodia@ril.com
6.	Vodafone India Shared Service Private Limited	Manmohan Sharma	Deputy General Manager	0-4th floor, Cluster D, Wing 3, EON Free Zone, Kharadi, Pune, Maharashtra 411014	manmohan.sharma@vodafone.com
7.	Teoco	Naman Khosla Abhijay Singh Sisodia	Technical Consultant	Infotech Center -6th floor, 14/2 Old Delhi Gurgaon Road, Dundahera, Gurgaon – 122016, India	naman.khosla@teoco.com
8.	Global Logic	Rashid Muhammad	Associate Manager	Plot No.7, Oxygen Business Park SEZ, Tower, 3, Noida-Greater Noida Expy, Sector 144, Noida, Uttar Pradesh 201304	rashid.muhammad@globallogic.com
9.	Mahendra Technical Institute	Mahendra Brmukh	Chairman and Managing Director	1st Floor, 3/B M B Classic, Telco Road, Near Kailash Dairy, Chinchwad Station, Pune – 411019 Maharashtra, India	info.mtipune@gmail.com
10.	Amazon	Anshul Gupta	Program Manager	Bangalore	anshlgu@amazon.com

11.	Stealth Mode Startup Company	Avadh Gupta	Founder, Co-Founder & Investor	Pune		avadhmac@gmail.com	
12.	Ranitronics	Yakama Vijayasree Kumar	Founder & Technical Consultant	Villa 302, Namaha Rhythm, Road No. 1, Kavya Avenue, Bachupally, Hyderabad – 500090, Telangana		info@ranitronics.com	
13	Eco Works	Deepali Sinha Khetriwal	Founder & CEO	C-601, Kalpataru Regency Phase 1, Kalyani Nagar, Pune 411006		deepali@ecowork.international	
14	Himachal Futuristic Communications Limited (HFCL)	Amit Agarwal	VP PLM	8, Commercial Complex, Masjid Moth, Greater Kailash - 11, New Delhi - 110048, India		amit.agarwal@hfcl.com	
15	Tata Communication	Alka Asthana	Head of Regulatory Affairs	Next Gen Tower Outer Ring Road, GK-1, New Delhi – 110048		alka.asthanatelecom@gmail.com	
16	Reckitt Benckiser	Sachin Sharma	Demand Manager	Udyog Vihar, Phase V, Gurgaon, Haryana		sachin.sharma@rb.com	
17	Sycamore Informatics	Rahul Kumar Kaushik	Product Manager	No. 6, 2nd Floor, 2nd Main, Arekere, Off Bannerghatta Road, Bangalore 560076		rahul.kaushik@sycamoreinformatics.com	
18	Nokia	Saurabh Singh	Software Quality Engineer	L5 and L6 Building Manyata Embassy Business Park Outer Ring Road, Nagawara 560045		saurabh.9.singh@nokia.com	
19	Edge Telecom	Arun Singh	Senior Project Engineer	9th floor, ILD Trade Centre, 904, main, Badshahpur Sohna Rd Hwy, near Subhash Chowk, Gurugram, Haryana 122018		arun.singh@edgetelecom.org	
20	Conduent	Prince Jain	Sr. Business Analyst	Plot No. 20, Candor Tech Space, Noida 201304		prince.jain@conduent.com	
21	Artificial Intelligence Technologies	Rohit Kumar Sharma	Manager – Development	A-21, sector 4, Block A, Kailash Colony, Greater Kailash, New Delhi,		rohit.sharma@aituniversal.com	

22	Ecom Express.in	Shekhar Poswal	Senior QA L1	10th Floor, Ambience Corporate Tower II, Ambience Island, Gurugram 122001		Shekhar.p@ecomexpress.in	
23	Paarminder Electronics Process Consultancy	Paarminder Singh	Consultant	New Delhi		singhpaarminder@gmail.com	
24	Senryaku Consulting	Udit Kaushik	Co-founder	Senryaku Management Private Limited Address: UTC031, DLF The Ultima, Sector 81, Gurugram, HR 122004		udit.kau@gmail.com	
25	Sopra Steria	Rikan Singh Tomar	Team Leader	Plot No. 20 & 21, Seaview Special Economic Zone, Building 4, Sector 135, Noida, Uttar Pradesh 201304		rikan.singh@soprasteria.com	

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	780	546	39	20	39	20
2026	780	546	39	20	39	20
2027	1040	728	52	27	52	27

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
4.0	Dec 2021 to March 2022	864	677	578									
4.0	April 2022 to	333	311	250									

	March 2023											
4.0	April 2023 to March 2024	313	288	252								
4.0	April 2024 to March 2025	573	473	439								

*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:
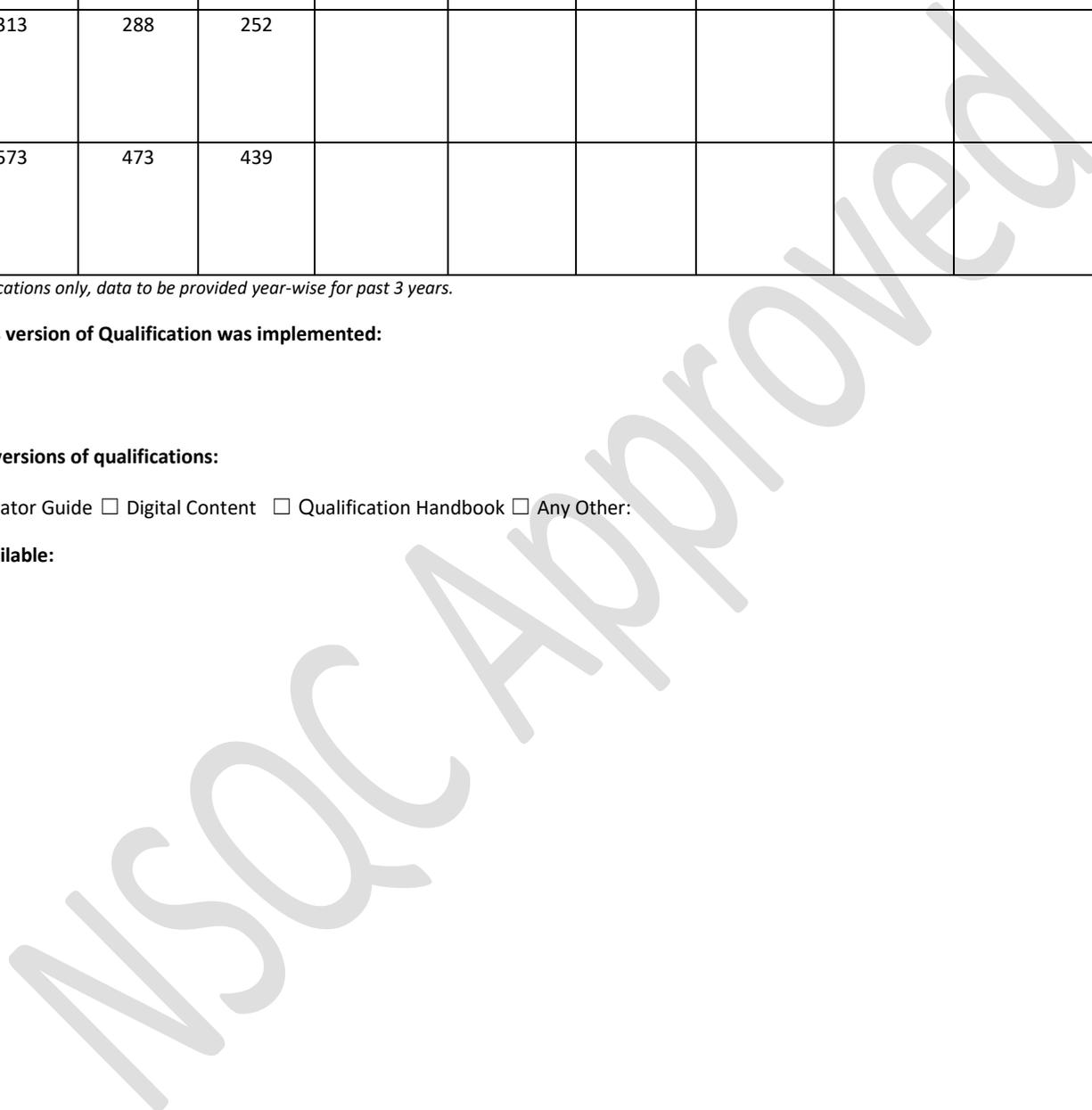
Annexure 5: Blended Learning

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	LMS Portal- TSSC Telco Learning Portal will be utilized with online content/virtual lectures (Telcolearning.com)	100:100
2	☒Imparting Soft Skills, Life Skills, and Employability Skills /Mentorship to Learners	LMS Portal- TSSC Telco Learning Portal will be utilized with online content/virtual lectures (Telcolearning.com)	100:100
3	☐Showing Practical Demonstrations to the learners		
4	☐Imparting Practical Hands-on Skills/ Lab Work/ workshop/ shop floor training		
5	☐Tutorials/ Assignments/ Drill/ Practice		
6	☐Proctored Monitoring/ Assessment/ Evaluation/ Examinations		
7	☐On the Job Training (OJT)/ Project Work Internship/ Apprenticeship Training		

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
TEL/N4138: Maintain tower site and report periodically	*Perform preventive maintenance at the tower site*	*12*	*20*	*-*	*7*
	PC1. inspect, clean, and maintain solar panels, wind turbines, and hybrid power systems	2	3	-	1
	PC2. test and service battery banks, including lead-acid, lithium-ion, and solid-state batteries	2	3	-	1
	PC3. monitor and calibrate power interface units (PIU), SMPS, diesel generators (DG), and air conditioning systems	2	3	-	1
	PC4. perform load balancing and ensure efficient energy distribution	2	3	-	1
	PC5. inspect and rectify faults in grounding systems to maintain electrical safety	2	3	-	1
	PC6. conduct preventive maintenance on telecom enclosures, cable connections, and environmental control units	1	3	-	1
	PC7. use remote monitoring tools to track site health and predict failures	1	2	-	1
	Perform corrective maintenance of equipment	*8*	*14*	*-*	*5*

	PC8. identify and troubleshoot site faults, including power failures and hardware malfunctions	2	3		1
	PC9. analyze site downtime using data analytics and remote monitoring systems	2	3	-	1
	PC10. repair or replace faulty power components, including batteries, rectifiers, and fuse	1	3	-	1
	PC11. restore connectivity by addressing transmission failures and alarm-triggered events	1	3	-	1
	PC12. perform emergency repairs on alternative power sources to maintain site uptime	2	2	-	1
	Monitor site power and energy efficiency	*5*	*8*	*-*	*4*
	PC13. track and analyze energy consumption to optimize power usage	1	2	-	1
	PC14. identify inefficiencies in battery charging cycles and rectify power losses	2	2	-	1
	PC15. ensure regulatory compliance in energy management and site operation	1	2	-	1
	PC16. maintain an inventory of spare parts required for power and maintenance activities	1	2	-	1
	Prepare and submit reports	*5*	*8*	*-*	*4*
	PC17. document preventive and corrective maintenance tasks in telecom reporting systems	1	2	-	1
	PC18. maintain records of site power logs, energy audits, and operational performance	2	2	-	1
	PC19. report issues such as fuel consumption, security breaches, or material theft to the supervisor	1	2	-	1
	PC20. use digital reporting tools to submit real-time site updates and alarm escalations	1	2	-	1
Total Marks		30	50	-	20
TEL/N4139: Manage site operation safely and hygienically	*Ensure regular site upkeep*	*8*	*13*	*-*	*5*
	PC1. conduct routine checks on power equipment, including solar panels and battery banks	2	4	-	2
	PC2. ensure proper functioning of civil and mechanical infrastructure at the site	2	3	-	1
	PC3. identify and clear unwanted materials to maintain a clutter-free site	2	3	-	1
	PC4. maintain accurate logs of equipment maintenance, power usage, and vendor activities	2	3	-	1
	Maintain safety and hygiene of the site	*8*	*13*	*-*	*5*
	PC5. implement national and international safety standards for telecom sites (e.g., IEC, OSHA, BIS)	2	3	-	1
	PC6. check fire safety equipment, grounding systems, and electrical installations regularly	2	4	-	2
	PC7. conduct hygiene checks for DG sets, PIU, SMPS, and battery banks	2	3	-	1
	PC8. maintain site cleanliness by removing debris and ensuring proper waste segregation	2	3		1
	Monitor alarms and infrastructure sensors	*7*	*12*	*-*	*5*
	PC9. track site alarms and sensor data using remote monitoring systems	2	3	-	2
	PC10. respond to security alerts and unauthorized access incidents in a timely manner	2	3	-	1

	PC11. ensure the proper functioning of surveillance cameras and access control systems	2	3		1
	PC12. analyze alarm trends to detect recurring site issues and take preventive action	1	3	-	1
	Oversee site administration	*7*	*12*	*-*	*5*
	PC13. verify electricity bill readings and ensure they align with site energy logs	2	3	-	1
	PC14. monitor vendor activities for adherence to maintenance contracts and Service Level Agreements (SLAs)	2	3		2
	PC15. ensure proper documentation of fuel supply, energy usage, and maintenance schedules	2	3	-	1
	PC16. maintain records of safety inspections, repairs, and regulatory compliance	1	3	-	1
	Total Marks	**30**	**50**	**-**	**20**
TEL/N9109: Follow sustainable practices in telecom infrastructure management	*Manage hazardous and e-waste at telecom sites*	*8*	*15*	*-*	*5*
	PC1. identify, segregate, and categorize e-waste (batteries, cables, outdated equipment) and hazardous waste (lead-acid batteries, diesel residues, etc.)	**2**	**4**	**-**	2
	PC2. dispose of or recycle waste following the applicable e-waste management guidelines	**2**	**4**	**-**	1
	PC3. follow safe handling procedures for hazardous materials, including protective gear usage	**2**	**4**	**-**	1
	PC4. maintain logs and records of disposed, recycled, or repurposed telecom waste	**2**	**3**	**-**	1
	Adopt green energy and resource efficiency practices	*6*	*15*	*-*	*5*
	PC5. optimize power usage through energy-efficient telecom equipment (e.g., LED lighting, smart cooling systems	**2**	**5**	**-**	2
	PC6. assist in adopting solar-powered telecom towers and integration of hybrid energy systems (e.g. solar power and battery backup)	**2**	**5**	**-**	1
	PC7. monitor and minimize fuel consumption in Diesel Generators (DG) sets through load balancing and regular maintenance	**2**	**5**	**-**	2
	Follow waste reduction strategies	*8*	*10*	*-*	*5*
	PC8. reduce packaging waste by promoting the reuse of telecom materials and accessories	**3**	**4**	**-**	2
	PC9. follow rainwater harvesting and wastewater reuse practices in telecom cooling systems	**3**	**3**	**-**	2
	PC10. promote structured cabling to reduce cable waste and optimize resource utilization	**2**	**3**	**-**	1
	Ensure compliance with environmental regulations	*8*	*10*	*-*	*5*
	PC11. follow Central Pollution Control Board (CPCB) guidelines for telecom site waste disposal	**3**	**4**	**-**	2
	PC12. assist in conducting periodic environmental audits to ensure sustainability compliance	**3**	**3**	**-**	2
	PC13. guide co-workers on eco-friendly practices and waste management policies at telecom sites	**2**	**3**	**-**	1
	Total Marks	**30**	**50**	**-**	**20**
DGT/VSQ/N0101: Employability Skills (30 Hours)	*Introduction to Employability Skills*	*1*	*1*	*-*	*-*
	PC1. understand the significance of employability skills in meeting the job requirements	-	-	-	-

	Constitutional values – Citizenship	*1*	*1*	-	-
	PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices	-	-	-	-
	Becoming a Professional in the 21st Century	*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.	-	-	-	-
	Basic English Skills	*2*	*3*	-	-
	PC4. speak with others using some basic English phrases or sentences	-	-	-	-
	Communication Skills	*1*	*1*	-	-
	PC5. follow good manners while communicating with others	-	-	-	-
	PC6. work with others in a team	-	-	-	-
	Diversity & Inclusion	*1*	*1*	-	-
	PC7. communicate and behave appropriately with all genders and PwD	-	-	-	-
	PC8. report any issues related to sexual harassment	-	-	-	-
	Financial and Legal Literacy	*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	-	-	-	-
	Essential Digital Skills	*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	-	-	-	-
	Entrepreneurship	*3*	*5*	-	-
	PC14. identify and assess opportunities for potential business	-	-	-	-
	PC15. identify sources for arranging money and associated financial and legal challenges	-	-	-	-
	Customer Service	*2*	*2*	-	-
	PC16. identify different types of customers	-	-	-	-
	PC17. identify customer needs and address them appropriately	-	-	-	-
	PC18. follow appropriate hygiene and grooming standards	-	-	-	-
	Getting ready for apprenticeship & Jobs	*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		110	180	-	60

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.

Mention the detailed assessment strategy in the provided template.

1. **Assessment System Overview:**
   - Batches assigned to the assessment agencies for conducting the assessment on SDSM/SIP or email
   - Assessment agencies send the assessment confirmation to VTP/TC looping SSC
   - Assessment agency deploys the ToA certified Assessor for executing the assessment
   - SSC monitors the assessment process & records

2. **Testing Environment:**
   - Confirm that the centre is available at the same address as mentioned on SDMS or SIP
   - Check the duration of the training.
   - Check the Assessment Start and End time to be as 10 a.m. and 5 p.m.
   - If the batch size is more than 30, then there should be 2 Assessors.
   - Check that the allotted time to the candidates to complete Theory & Practical Assessment is correct.
   - Check the mode of assessment—Online (TAB/Computer) or Offline (OMR/PP).
   - Confirm the number of TABs on the ground are correct to execute the Assessment smoothly.
   - Check the availability of the Lab Equipment for the particular Job Role.

3. **Assessment Quality Assurance levels / Framework:**
   - Question papers created by the Subject Matter Experts (SME)
   - Question papers created by the SME verified by the other subject Matter Experts
   - Questions are mapped with NOS and PC
   - Question papers are prepared considering that levels 1 to 3 are for the unskilled & semi-skilled individuals, and level 4 and above are for the skilled, supervisor & higher management
   - Assessor must be ToA certified & trainer must be ToT Certified
   - Assessment agency must follow the assessment guidelines to conduct the assessment

4. **Types of evidence or evidence-gathering protocol:**
   - Time-stamped & geotagged reporting of the assessor from assessment location
   - Center photographs with signboards and scheme specific branding
   - Biometric or manual attendance sheet (stamped by TP) of the trainees during the training period
   - Time-stamped & geotagged assessment (Theory + Viva + Practical) photographs & videos

5. **Method of verification or validation:**
   - Surprise visit to the assessment location

- Random audit of the batch

- Random audit of any candidate

6. **Method for assessment documentation, archiving, and access**

- Hard copies of the documents are stored

- Soft copies of the documents & photographs of the assessment are uploaded / accessed from Cloud Storage

- Soft copies of the documents & photographs of the assessment are stored in the Hard Drives

The trainee will be tested for the acquired skill, knowledge and attitude through formative/ summative assessment at the end of the course and as this NOS and MC is adopted across sectors and qualifications, the respective AB can conduct the assessments as per their requirements.

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
TSSC	Telecom Sector Skill Council
TRAI	Telecom Regulatory Authority of India
PIU	Power Interface Units
DG	Diesel Generators
SMPs	Switched-Mode Power Supply
SLAs	Service Level Agreements
CPCB	Central Pollution Control Board

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