

QUALIFICATION FILE

Infrastructure Technician-5G Networks

☒ 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	Infrastructure Technician-5G Networks																				
2.	Sector/s	Telecom																				
3.	Type of Qualification: ☐ New ☒ Revised ☐ Has Electives/Options ☐ OEM	NQR Code & version of existing/previous qualification: (2022/TEL/TSSC/05792, V2.0)		Qualification Name of existing/previous version: Infrastructure Technician-5G Networks																		
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-04084-2025-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	An Infrastructure Technician - 5G Networks is responsible for installing the passive infrastructure equipment at 5G network infrastructure sites to ensure power supply to 5G network and transmission equipment. The individual is also responsible for maintaining the passive infrastructure equipment. The person may also carry out regular repair and maintenance of the 5G network infrastructure.																				
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>12th grade Pass</td> <td></td> </tr> <tr> <td>2.</td> <td>Completed 2nd year of the 3-year diploma after 10th in Electronics Engineering/ Electrical Engineering/ Wireless Communication Technology/ Networking and Mobile Communications</td> <td></td> </tr> <tr> <td>3.</td> <td>10th grade pass</td> <td>3-years of experience in the operations and maintenance of passive infrastructure</td> </tr> <tr> <td>4.</td> <td>Previous relevant Qualification of NSQF Level 3.0</td> <td>3-years of experience in the operations and maintenance of passive infrastructure</td> </tr> <tr> <td>5.</td> <td>Previous relevant Qualification of NSQF Level 3.5</td> <td>1.5-years of experience in the operations and maintenance of passive infrastructure</td> </tr> </tbody> </table>			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 Engineering/ Electrical Engineering/ Wireless Communication Technology/ Networking and Mobile Communications		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
S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)																				
1.	12th grade Pass																					
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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 <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>150</td><td>180</td><td>180</td><td></td><td>510</td></tr> <tr> <td>Online</td><td>150</td><td></td><td></td><td></td><td></td></tr> </tbody> </table> (Refer Blended Learning Annexure for details)					Training Delivery Modes	Theory (Hours)	Practical (Hours)	OJT Mandatory (Hours)	OJT Recommended (Hours)	Total (Hours)	Classroom (offline)	150	180	180		510	Online	150				
Training Delivery Modes	Theory (Hours)	Practical (Hours)	OJT Mandatory (Hours)	OJT Recommended (Hours)	Total (Hours)																			
Classroom (offline)	150	180	180		510																			
Online	150																							
14.	Aligned to NCO/ISCO Code/s (if no code is available mention the same)	NCO-2015/3114.1301																						
15.	Progression path after attaining the qualification (Please show Professional and Academic progression)	Infrastructure Technician-5G Networks (NSQF Level 4) → Cluster In-charge (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 Infrastructure Technician-5G Networks 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 <i>(In case of CS or MS, provide details of both Lead AB & Supporting ABs)</i>	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.	Prepare for the Installation of 5G Network Infrastructure	TEL/N4202, v3.0	Core	4.0	5	50	70	30	-	150	30	50	-	20	100	25
2.	Install and Set up Passive Infrastructure Equipment with the 5G Equipment	TEL/N4203, v3.0	Core	4.0	7	30	60	120	-	210	30	50	-	20	100	25
3.	Maintain Passive Infrastructure Equipment	TEL/N4204, v3.0	Core	4.0	3	30	30	30	-	90	30	50	-	20	100	25
4.	Follow sustainable practices in telecom infrastructure management	TEL/N9109, v1.0	Core	4.0	1	10	20	-	-	30	30	50	-	20	100	15
5.	Employability Skills (30 Hours)	DGT/VSQ/N0101, v1.0	Non-Core	2.0	1	30	-	-	-	30	20	30	-	-	50	10
Duration (in Hours) / Total Marks					17	150	180	180	-	510	140	230	-	80	450	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) <i>(as per NCVET guidelines)</i>	Educational Qualification: Graduate in any discipline, preferably Electronics and Communication /Telecom/ Information Technology/ Computer Science and other relevant fields. Industry & Training Experience: 6 years of experience after Graduation in Telecom Infrastructure - 5G Networks. 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) <i>(as per NCVET guidelines)</i>	Educational Qualification: Graduate in any discipline, preferably Electronics and Communication /Telecom/ Information Technology/ Computer Science and other relevant fields. Industry & Training Experience: 8 years of experience after Graduation in Telecom Infrastructure - 5G Networks. 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 <i>(If "Yes", details to be provided in Annexure)</i>
4.	In Case of Revised Qualification, Details of Any Upskilling Required for Trainer	NA

Section 4: Assessment Related

1.	Assessor's Qualification and experience in relevant sector (in years) <i>(as per NCVET guidelines)</i>	Educational Qualification: Graduate in any discipline, preferably Electronics and Communication /Telecom/ Information Technology/ Computer Science and other relevant fields. Industry & Training Experience: 6 years of experience after Graduation in Telecom Infrastructure - 5G Networks. 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) <i>(as per NCVET guidelines)</i>	Educational Qualification: Graduate in any discipline, preferably Electronics and Communication /Telecom/ Information Technology/ Computer Science and other relevant fields. Industry & Training Experience: 6 years of experience after Graduation in Telecom Infrastructure - 5G Networks. 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) <i>(as per NCVET guidelines)</i>	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 Diploma (after Class 10 th) and 3 years of experience after Graduation in Telecom Infrastructure - 5G Networks. Certification: “Lead Assessor” mapped to the Qualification Pack “MEP/Q2702, v3.0” Minimum accepted score is 90% aggregate.
4.	Assessment Mode <i>(Specify the assessment mode)</i>	Offline/Online
5.	Tools and Equipment Required for Assessment	☒ Same as for training ☐ Yes ☐ No <i>(details to be provided in Annexure-if it is different for Assessment)</i>

Section 5: Evidence of the need for the Qualification

Provide Annexure/Supporting documents name.

1.	Latest Skill Gap Study (not older than 2 years) (Yes/No): 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: 2330
6.	Evidence of Concurrence/Consultation with Line Ministry/State Departments: <i>Approved</i> If “No”, why:

Section 6: Annexure & Supporting Documents Check List

Specify Annexure Name / Supporting document file name

1.	Annexure: NCrf/NSQF level justification based on NCrf level/NSQF descriptors <i>(Mandatory)</i>	<i>Annexure 1</i>
2.	Annexure: List of tools and equipment relevant for qualification <i>(Mandatory, except in case of online course)</i>	<i>Annexure 2</i>
3.	Annexure: Detailed Assessment Criteria <i>(Mandatory)</i>	<i>Annexure 6</i>
4.	Annexure: Assessment Strategy <i>(Mandatory)</i>	<i>Annexure 7</i>
5.	Annexure: Blended Learning <i>(Mandatory, in case selected Mode of delivery is “Blended Learning”)</i>	NA
6.	Annexure: Multiple Entry-Exit Details <i>(Mandatory, in case qualification has multiple Entry-Exit)</i>	Yes
7.	Annexure: Acronym and Glossary <i>(Optional)</i>	<i>Annexure 8</i>

8.	Supporting Document: Model Curriculum (<i>Mandatory – Public view</i>)	<i>Attached</i>
9.	Supporting Document: Career Progression (<i>Mandatory - Public view</i>)	<i>Attached</i>
10.	Supporting Document: Occupational Map (<i>Mandatory</i>)	<i>Attached</i>
11.	Supporting Document: Assessment SOP (<i>Mandatory</i>)	<i>Attached</i>
12.	Any other document you wish to submit:	<i>NO</i>

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	Prepare for the Installation of 5G Network Infrastructure - Review site layout, blueprints, and technical specifications. - Inspect installation sites for structural and regulatory compliance. - Coordinate logistics, tools, and equipment. - Ensure proper placement of antennas, small cells, and fiber backhaul. - Follow health, safety, and regulatory guidelines. Install and Set up Passive Infrastructure Equipment - Mount and secure 5G network equipment. - Install fiber optic, power, and grounding cables. - Configure and integrate BBUs, RRUs, and antennas. - Conduct power and connectivity checks. - Ensure compliance with industry and safety standards. Maintain Passive Infrastructure Equipment - Perform routine inspections and testing. - Maintain antenna systems, fiber links, and power units. - Repair or replace damaged components. - Maintain records of maintenance and performance tests. Follow Sustainable Practices in Telecom Infrastructure - Identify and manage recyclable and hazardous materials.	A 5G Infrastructure Technician at NSQF Level 4 is responsible for installing, setting up, maintaining, and troubleshooting passive infrastructure that supports 5G network deployment. This includes site preparation, installation of power and cooling systems, mounting telecom equipment, and ensuring proper connectivity between active and passive components. Technicians conduct preventive and corrective maintenance on towers, enclosures, power backup systems, and grounding infrastructure to ensure continuous network operations. They also follow health, safety, and environmental (HSE) standards while implementing sustainable practices such as energy efficiency, waste management, and regulatory compliance. With expertise in 5G infrastructure setup, equipment integration, and maintenance, this role ensures efficiency, reliability, and adherence to sustainability guidelines in telecom operations.	4.0

	- Follow waste disposal and recycling protocols. - Optimize energy usage in equipment operations. - Ensure compliance with environmental regulations.		
Professional and Technical Skills/ Expertise/ Professional Knowledge	- Know the procedures for site preparation and equipment verification for 5G infrastructure. - Knowledge of installing and setting up passive infrastructure equipment for 5G networks. - Understand the troubleshooting of power fluctuations, battery issues, and equipment failures. - Understanding of preventive maintenance for passive infrastructure to ensure efficiency. - Know the handling, testing, and replacement of SMPS and PIU for stable power supply. - Knowledge of sustainable practices, including e-waste management and green energy use. - Understand the regulatory compliance for waste disposal and hazardous material handling. - Understanding of structured cabling and resource optimization to minimize infrastructure waste. - Know the role of remote monitoring and IoT-based predictive maintenance in telecom. - Knowledge of hybrid energy solutions like solar power and fuel-efficient DG sets.	An Infrastructure Technician – 5G Services requires a combination of theoretical knowledge and hands-on expertise to support the setup and maintenance of passive infrastructure in telecom networks. Responsibilities include reading and interpreting installation manuals, technical diagrams, and site plans to ensure accurate deployment. The technician is skilled in mounting racks, enclosures, grounding systems, and environmental control units, ensuring compliance with telecom infrastructure standards. The role involves integrating passive infrastructure with 5G network equipment, performing routine inspections, troubleshooting faults, and implementing corrective measures to reduce downtime. Technicians maintain power supply systems, battery backups, and cooling units to prevent service disruptions. They also ensure regulatory compliance with HSE norms, implementing sustainable practices such as optimizing energy efficiency, reducing e-waste, and maintaining environmental control measures. Through technical proficiency, structured workflows, and adherence to industry best practices, this role aligns with NSQF Level 4, emphasizing independent execution within predefined guidelines.	4.0
Employment Readiness & Entrepreneurship Skills & Mind-set/Professional Skill	- Develop problem-solving skills to diagnose and resolve passive infrastructure issues efficiently. - Apply critical thinking in assessing site conditions and selecting optimal installation methods. - Demonstrate adaptability to work with evolving 5G technologies and sustainable telecom practices. - Follow industry safety standards and regulatory guidelines for equipment installation and maintenance. - Utilize remote monitoring tools and predictive maintenance techniques for infrastructure reliability. - Implement effective time management to complete	Employment readiness and entrepreneurship skills for an Infrastructure Technician – 5G Services focus on technical efficiency, problem-solving, and professional growth. Technicians must be adept at selecting the right tools, setting up passive infrastructure, and troubleshooting faults in power systems, enclosures, and telecom site components. They should ensure network stability by adhering to safety protocols, following structured workflows, and optimizing infrastructure performance. A strong understanding of regulatory compliance, sustainability, and emerging telecom trends is essential to meet industry standards. The ability to analyze faults,	4.0

	installations and repairs within deadlines. - Optimize resource usage by promoting energy-efficient solutions and reducing telecom waste. - Enhance communication skills to coordinate with teams, vendors, and regulatory bodies. - Adopt an entrepreneurial mindset to identify opportunities for innovation in telecom infrastructure. - Ensure customer satisfaction by maintaining high service quality and minimizing network downtime.	implement preventive maintenance strategies, and manage infrastructure efficiency enables technicians to enhance service reliability and career advancement. By developing problem-solving skills, fostering decision-making abilities, and exploring entrepreneurial opportunities in telecom infrastructure services, technicians can contribute to innovation and sustainability in the industry. This classification at Level 4 highlights the role's focus on independent work, technical competence, and adherence to safety and environmental regulations.	
Broad Learning Outcomes/Core Skill	The Broad Learning Outcomes/Core Skill are: - Interpret technical documents, blueprints, and site plans for accurate installation and setup of 5G infrastructure. - Apply advanced testing techniques to assess passive infrastructure performance and troubleshoot faults. - Execute installation, configuration, and alignment of passive infrastructure equipment with 5G components. - Ensure compliance with health, safety, and environmental standards in telecom infrastructure management. - Maintain accurate records, including installation logs, test reports, and maintenance schedules, for operational efficiency. - Optimize site preparation, equipment setup, and maintenance workflows to meet service level agreements. - Implement sustainable telecom practices by managing waste, energy efficiency, and resource utilization. - Troubleshoot passive infrastructure faults, including power supply, cooling systems, and structural issues, to minimize network downtime. - Apply preventive and corrective maintenance strategies to enhance the longevity and	The Infrastructure Technician – 5G Services role at NSQF Level 4 requires expertise in installing, maintaining, and troubleshooting passive telecom infrastructure. Technicians must perform routine and non-routine tasks, such as mounting enclosures, setting up power and cooling units, ensuring grounding compliance, and troubleshooting infrastructure faults. They must follow safety protocols, environmental standards, and regulatory guidelines to maintain high operational efficiency. Technicians should demonstrate problem-solving skills, teamwork, and communication abilities to coordinate with engineers and field teams for efficient 5G deployment. The role also requires selecting and using the right tools, implementing maintenance schedules, and ensuring infrastructure sustainability. Working under predefined technical procedures, they contribute to structured processes, aligning with NSQF Level 4, which focuses on practical knowledge application, structured problem-solving, and independent execution in a defined work environment.	4.0

	performance of telecom infrastructure. Develop problem-solving, teamwork, and decision-making skills to improve efficiency and career growth in the 5G telecom sector.		
Responsibility	The responsibilities are: - Conduct the site survey - Prepare for the installation of 5G network infrastructure - Install passive infrastructure equipment - Set up passive infrastructure with 5G equipment - Maintain passive infrastructure equipment - Document and review the maintenance record - Manage hazardous and e-waste at telecom sites - Adopt green energy and resource efficiency practices - Follow waste reduction strategies - Ensure compliance with environmental regulations	An Infrastructure Technician - 5G Networks is responsible for installing the passive infrastructure equipment at 5G network infrastructure sites to ensure power supply to 5G network and transmission equipment. The individual is also responsible for maintaining the passive infrastructure equipment. The person may also carry out regular repair and maintenance of the 5G network infrastructure.	4.0

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.	Hanger Bolts	NOS	1
2.	RRU (Remote Radio Unit)	Pieces	1
3.	Climate Control Unit	NOS	1
4.	Antenna Mounts	Pieces	3
5.	Waveguide Clamps	Pieces	5
6.	Restrainers	Pieces	4
7.	Mounting Brackets	Pieces	4
8.	Thimbles	Pieces	1
9.	Fittings	Pieces	1
10.	Clevises	Pieces	1
11.	Shackles	Pieces	1
12.	Artificial Load Tester	Pieces	1
13.	Turnbuckles	Pieces	1

14.	Resistive Load Bank	Pieces	1
15.	Fiber Distribution Hub	Pieces	1
16.	Battery Bank	Pieces	1
17.	Battery Charger	Pieces	1
18.	Switched-mode Power Supply (SMPS)	Pieces	1
19.	Coaxial Cable	Ft	10
20.	Power Interface Unit (PIU)	Pieces	1
21.	Broadband Amplifiers	Pieces	1
22.	Antenna Test Systems & Over-The-Air (OTA) Chambers	NOS	1

Classroom Aids

The aids required to conduct sessions in the classroom are:

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

Annexure 3: Industry Validations Summary

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

S. No	Organization Name	Representative Name	Designation	Contact Address	Contact Phone No	E-mail ID	LinkedIn Profile (if available)
1.	Ibus Network and infrastructure Pvt.Ltd.	TK Narayanan	Deputy General Manager Commercial	7th Floor Tower B, Vatika Towers Golf Crouse Road Sector 54 Gurugram ,Haryana India 122011		tk.narayanan@ibusnetworks.com	
2.	ICAI 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		anshlg@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	10 th 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		udit.kau@gmail.com	

				Address: UTC031, DLF The Ultima, Sector 81, Gurugram, HR 122004			
25	Sopra Steria	Rikan Tomar	Singh	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	700	490	35	18	35	18
2026	700	490	35	18	35	18
2027	930	650	47	24	47	24

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
2.0	April 2024 to March 2025	1866	595	515									

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/N4202: Prepare for the Installation of 5G Network Infrastructure	<i>Conduct the site survey</i>	15	25	-	10
	PC1. determine the scope of work, including the identification of the site selected for the installation of 5G network infrastructure	2.5	4	-	1.5
	PC2. coordinate with relevant personnel to conduct a site survey and assess the site's suitability for installation	2.5	4	-	1.5
	PC3. inspect the site for accessibility, structural integrity, and potential safety hazards such as electrical and mechanical risks	2.5	4.5	-	2
	PC4. identify and document site-specific modifications required for installation and coordinate with relevant personnel for necessary changes	2.5	4.5	-	1.5
	PC5. assess environmental conditions that may impact infrastructure performance and recommend mitigation measures	2.5	4	-	2
	PC6. verify the availability of power supply and backhaul connectivity at the site for seamless network integration	2.5	4	-	1.5

	<i>Prepare for the installation of 5G network infrastructure</i>	<i>15</i>	<i>25</i>	<i>-</i>	<i>10</i>
	PC7. obtain the required authorizations and complete the necessary paperwork before installation	2	3	-	1.5
	PC8. arrange and verify the availability of equipment, accessories, and tools required for installation	2	4	-	1.5
	PC9. inspect all equipment, accessories, and tools for functionality, and replace faulty or damaged items	2	4	-	1.5
	PC10. assemble and configure networking gear and infrastructure components as per installation requirements	2.5	4	-	1.5
	PC11. coordinate with relevant personnel for the erection of 5G cell towers and positioning of related equipment	2.5	4	-	1.5
	PC12. document all pre-installation activities, including site readiness, equipment inventory, and compliance requirements	2	3	-	1.5
	PC13. ensure safety measures are in place and communicate installation plans with relevant stakeholders	2	3	-	01
	Total Marks	30	50	-	20
TEL/N4203: Install and Set up Passive Infrastructure Equipment with the 5G Equipment	<i>Install passive infrastructure equipment</i>	<i>15</i>	<i>25</i>	<i>-</i>	<i>10</i>
	PC1. select appropriate passive infrastructure equipment, such as battery bank, Switched-Mode Power Supply (SMPS) unit, Power Interface Unit (PIU), Diesel Generator (DG) set, and Climate Control Unit, based on site requirements	1.5	2	-	1
	PC2. conduct tests on passive infrastructure equipment before installation to verify their functionality	1.5	1.5	-	1
	PC3. install the battery bank, battery charger, and battery stand as per manufacturer's guidelines, ensuring sufficient batteries as per power requirements	1	1.5	-	1
	PC4. charge and test the battery bank to confirm its ability to charge and discharge properly	1	1.5	-	1
	PC5. install the SMPS unit according to manufacturer instructions and verify it provides regulated output voltage	1	1.5	-	1
	PC6. install and test the PIU to ensure protection against voltage fluctuations and surges	1	1.5	-	1
	PC7. identify a suitable location for the DG set, ensuring proper ventilation, obstruction-free airflow, and minimal dust accumulation	1	1.5	-	0.5
	PC8. ensure adequate space for DG set operation, servicing, and ventilation	1	2	-	0.5
	PC9. install the DG set following manufacturer instructions and implement air cleaners for dusty environments and anti-condensation heaters for humid conditions	1	2	-	0.5
	PC10. install Climate Control Units to maintain optimal temperature and humidity levels for telecom equipment	1	2	-	0.5
	PC11. ensure correct placement of all passive infrastructure equipment, adhering to manufacturer specifications	1	2	-	0.5
	PC12. perform structured cabling for installed equipment, ensuring compatibility and adherence to power distribution guidelines	1	2	-	0.5

	PC13. establish a power connection between telecom equipment and the power source to ensure safe and continuous operation	1	2	-	0.5
	PC14. conduct functionality tests on installed infrastructure equipment and rectify any identified issues	1	2	-	0.5
	<i>Set up passive infrastructure with 5G equipment</i>	<i>15</i>	<i>25</i>	<i>-</i>	<i>10</i>
	PC15. install the power supply unit for gNodeB/eNodeB, ensuring compatibility with the equipment	1.5	2	-	1
	PC16. install a heat sink for gNodeB/eNodeB to facilitate heat dissipation and prevent overheating	1.5	1.5	-	1
	PC17. connect the gNodeB/eNodeB with the power supply unit and heat sink using appropriate cabling, ensuring secure connections	1.5	1.5	-	1
	PC18. establish a secure connection between power supply units and the main power source	1.5	2	-	1
	PC19. set up a reliable power connection between the 5G base station and the power source, adhering to equipment power requirements	1	2	-	1
	PC20. use appropriate cables for power supply and provide protection against environmental exposure and wear	1	2	-	1
	PC21. connect and power up 5G base stations, 5G Radio Frequency (RF) transceivers, and Remote Radio Units (RRUs) following specified power guidelines	1	2	-	1
	PC22. integrate emergency power supply systems with 5G network and transmission equipment	1	2	-	0.5
	PC23. install protective shelters and telecom ducts to safeguard passive infrastructure equipment and cabling	1	2	-	0.5
	PC24. establish a site-wide power distribution system for consistent power delivery to all cell tower equipment	1	2	-	0.5
	PC25. use suitable Personal Protective Equipment (PPE) while handling electrical installations to ensure safety	1	2	-	0.5
	PC26. conduct final testing of all equipment post-installation and troubleshoot any operational issues	1	2	-	0.5
	PC27. coordinate with equipment manufacturers to address any defects or malfunctions	1	2	-	0.5
	Total Marks	30	50	-	20
TEL/N4204: Maintain Passive Infrastructure Equipment	<i>Maintain passive infrastructure equipment</i>	<i>25</i>	<i>45</i>	<i>-</i>	<i>8</i>
	PC1. inspect passive infrastructure equipment, including battery banks, SMPS, PIU, DG sets, climate control units, and surge protection devices, to ensure optimal functionality	1.5	3	-	1
	PC2. carry out preventive maintenance of passive infrastructure equipment as per the recommended schedule and industry best practices	2	3	-	0.5
	PC3. verify the correct positioning, connections, and charge-holding capacity of batteries in the battery bank and replace any faulty units	2	3	-	0.5
	PC4. inspect, test, and replace damaged or worn-out equipment cables to prevent connectivity failures	2	3	-	0.5
	PC5. conduct diagnostic tests on batteries to assess performance and execute necessary corrective actions	2	3	-	0.5

	PC6. ensure the SMPS efficiently controls power at high frequencies and supplies stable power to telecom equipment, performing corrective maintenance when needed	2	3	-	0.5
	PC7. troubleshoot SMPS-related issues such as overheating, overvoltage, and inconsistent power supply	1.5	3	-	0.5
	PC8. perform testing on the PIU to validate its ability to handle power fluctuations and surges efficiently, addressing any malfunctions	1.5	3	-	0.5
	PC9. diagnose and resolve issues affecting PIU performance to prevent downtime	1.5	3	-	0.5
	PC10. perform routine checks on the DG set for issues such as low oil pressure, high water temperature, overload, start failure, short circuit, phase loss, high voltage, and voltage loss	1.5	3	-	0.5
	PC11. execute manufacturer-specified troubleshooting procedures for identified DG set faults	1.5	3	-	0.5
	PC12. assess climate control units, including HVAC systems, to ensure optimal temperature and humidity control for telecom equipment protection	1.5	3	-	0.5
	PC13. use only manufacturer-approved spare parts and maintenance tools to ensure compliance with safety and performance standards	1.5	3	-	0.5
	PC14. replace damaged or irreparable passive infrastructure equipment, ensuring proper integration with existing systems	1.5	3	-	0.5
	PC15. use remote monitoring tools where applicable for predictive maintenance of passive infrastructure components	1.5	3	-	0.5
	<i>Document and review maintenance records</i>	5	5	-	2
	PC16. maintain accurate records of all maintenance activities, including inspections, repairs, and replacements	2	2	-	0.5
	PC17. review and analyze maintenance logs to identify recurring equipment issues and implement preventive strategies	2	2	-	1
	PC18. ensure compliance with regulatory standards and company guidelines through proper documentation and periodic audits	1	2	-	0.5
	Total Marks	30	50	-	20
TEL/NXXXX: Follow sustainable practices in telecom infrastructure management	<i>Manage hazardous and e-waste at telecom sites</i>	10	16	-	8
	PC1. identify, segregate, and categorize e-waste (batteries, cables, outdated equipment) and hazardous waste (lead-acid batteries, diesel residues, etc.)	3	4	-	2
	PC2. dispose of or recycle waste following the applicable e-waste management guidelines	3	4	-	2
	PC3. follow safe handling procedures for hazardous materials, including protective gear usage	2	4	-	2
	PC4. maintain logs and records of disposed, recycled, or repurposed telecom waste	2	4	-	2
	<i>Adopt green energy and resource efficiency practices</i>	8	12	-	6
	PC5. optimize power usage through energy-efficient telecom equipment (e.g., LED lighting, smart cooling systems)	2	4	-	2
	PC6. assist in adopting solar-powered telecom towers and integration of hybrid energy systems (e.g. solar power and battery backup)	3	4	-	2
	PC7. monitor and minimize fuel consumption in Diesel Generators (DG) sets through load balancing and regular maintenance	3	4	-	2

	<i>Follow waste reduction strategies</i>	6	12	-	3
	PC8. reduce packaging waste by promoting the reuse of telecom materials and accessories	2	4	-	1
	PC9. follow rainwater harvesting and wastewater reuse practices in telecom cooling systems	2	4	-	1
	PC10. promote structured cabling to reduce cable waste and optimize resource utilization	2	4	-	1
	<i>Ensure compliance with environmental regulations</i>	6	10	-	3
	PC11. follow Central Pollution Control Board (CPCB) guidelines for telecom site waste disposal	2	4	-	1
	PC12. assist in conducting periodic environmental audits to ensure sustainability compliance	2	3	-	1
	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)	<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	-	-	-	-
	report any issues related to sexual harassment	-	-	-	-
	PC8. <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	140	230	-	80

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
LAN	Local Area Network
WAN	Wide Area Network
GI	Galvanized Iron
RCC	Reinforced Cement Concrete
PLB	Permanently Lubricated Duct
OTDR	Optical Time-Domain Reflectometer
OHS	Occupational Health and Safety
EPR	Earth Potential Rise
AT	Acceptance Testing
NOC	Network Operations Center
OFCs	Optical Fiber Cables
STMs	Synchronous Transport Modules
VFL	Visual Fault Locator
POPs	Points of Presence
NOC	Network Operation Center
TAT	Turn Around Time
SLAs	Service Level Agreements
KPIs	Key Performance Indicators
WDM	Wavelength Division Multiplexing
FRP	Fiber Reinforced Plastic

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