

QUALIFICATION FILE

Telecom Technician - IoT Devices/Systems

☒ 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

Table of Contents

Section 1: Basic Details 3

Section 2: Module Summary 5

 NOS/s of Qualifications..... 5

 Mandatory NOS/s: 5

 Assessment - Minimum Qualifying Percentage..... 5

Section 3: Training Related..... 6

Section 4: Assessment Related..... 6

Section 5: Evidence of the need for the Qualification..... 7

Section 6: Annexure & Supporting Documents Check List..... 7

 Annexure 1: Evidence of Level..... 8

 Annexure 2: Tools and Equipment (Lab Set-Up) 11

 Annexure 3: Industry Validations Summary..... 12

 Annexure 4: Training & Employment Details 15

 Annexure 5: Blended Learning 17

 Annexure 6: Detailed Assessment Criteria 17

 Annexure 7: Assessment Strategy..... 20

 Annexure 8: Acronym and Glossary 22

Section 1: Basic Details

1.	Qualification Name	Telecom Technician - IoT Devices/Systems																			
2.	Sector/s	Telecom																			
3.	Type of Qualification: ☐ New ☒ Revised ☐ Has Electives/Options ☐ OEM	NQR Code & version of existing/previous qualification: (2022/TEL/TSSC/07010 , V4.0)	Qualification Name of existing/previous version: Telecom Technician - IoT Devices/Systems																		
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-04081-2025-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 Technician – IoT Devices/Systems is responsible for the on-site installation, configuration, and maintenance of IoT devices (nodes). This includes setting up communication links between nodes and controllers (gateways) and ensuring connectivity to central servers or devices via external communication networks such as WiFi, 4G, or 5G on GSM/CDMA. The individual is also responsible for performing first-level Diagnostics and Investigation (DI) or Damage Recovery (DR).																			
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 3-year diploma after 10th in Electronics and Communication Engineering/ Computer Engineering / IoT and Smart Devices/ Embedded Systems Design</td> <td></td> </tr> <tr> <td>3.</td> <td>10th Grade Pass</td> <td>3 years of experience in IoT Devices/ Optical Fiber/Broadband Domain</td> </tr> <tr> <td>4.</td> <td>Previous relevant Qualification of NSQF Level 3.0</td> <td>3 years of relevant experience in IoT Devices/ Optical Fiber/Broadband Domain</td> </tr> <tr> <td>5.</td> <td>Previous relevant Qualification of NSQF Level 3.5</td> <td>1.5 years of relevant experience in IoT Devices/ Optical Fiber/Broadband Domain</td> </tr> </tbody> </table> b. Age: NA		S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)	1.	12th Grade Pass		2.	Completed 2nd year of 3-year diploma after 10th in Electronics and Communication Engineering/ Computer Engineering / IoT and Smart Devices/ Embedded Systems Design		3.	10th Grade Pass	3 years of experience in IoT Devices/ Optical Fiber/Broadband Domain	4.	Previous relevant Qualification of NSQF Level 3.0	3 years of relevant experience in IoT Devices/ Optical Fiber/Broadband Domain	5.	Previous relevant Qualification of NSQF Level 3.5	1.5 years of relevant experience in IoT Devices/ Optical Fiber/Broadband Domain
S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)																			
1.	12th Grade Pass																				
2.	Completed 2nd year of 3-year diploma after 10th in Electronics and Communication Engineering/ Computer Engineering / IoT and Smart Devices/ Embedded Systems Design																				
3.	10th Grade Pass	3 years of experience in IoT Devices/ Optical Fiber/Broadband Domain																			
4.	Previous relevant Qualification of NSQF Level 3.0	3 years of relevant experience in IoT Devices/ Optical Fiber/Broadband Domain																			
5.	Previous relevant Qualification of NSQF Level 3.5	1.5 years of relevant experience in IoT Devices/ Optical Fiber/Broadband Domain																			

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>210</td> <td>150</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	210	150		510	Online	150				
Training Delivery Modes	Theory (Hours)	Practical (Hours)	OJT Mandatory (Hours)	OJT Recommended (Hours)	Total (Hours)																			
Classroom (offline)	150	210	150		510																			
Online	150																							
14.	Aligned to NCO/ISCO Code/s (if no code is available mention the same)	NCO-2015/3114.0803																						
15.	Progression path after attaining the qualification (Please show Professional and Academic progression)	Telecom Technician - IoT Devices/Systems (NSQF Level 4) → Internet of Things (IOT) – Solution Architecture (End Point Solution) (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: <i>Motor Impairment, Hearing Impairments, Speech and Language Disorders</i>																						
19.	How Participation of Women will be Encouraged	Encouraging the participation of women in the role of Telecom Technician - IoT Devices/Systems 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/N9105																						
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.	Install and configure IoT devices at customer premises	TEL/N6234, v4.0	Core	4.0	8	60	100	80	-	240	30	50	-	20	100	40
2.	Perform level 1 troubleshooting of IoT devices	TEL/N6236, v4.0	Core	4.0	7	50	90	70	-	210	30	50	-	20	100	40
3.	Follow sustainable practices in telecom infrastructure installation	TEL/N9105, v1.0	Core	4.0	1	10	20	-	-	30	30	50	-	20	100	10
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 IoT Devices/ Optical Fiber/Broadband Domain. 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 IoT Devices/ Optical Fiber/Broadband Domain. 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 IoT Devices/ Optical Fiber/Broadband Domain. 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 IoT Devices/ Optical Fiber/Broadband Domain. 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 Graduation in IoT Devices/ Optical Fiber/Broadband Domain. 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: 33750
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 (Mandatory, in case qualification has multiple Entry-Exit)	NA
7.	Annexure: Acronym and Glossary (Optional)	Annexure 8
8.	Supporting Document: Model Curriculum (Mandatory – Public view)	Attached
9.	Supporting Document: Career Progression (Mandatory - Public view)	Attached
10.	Supporting Document: Occupational Map (Mandatory)	Attached
11.	Supporting Document: Assessment SOP (Mandatory)	Attached
12.	Any other document you wish to submit:	NO

Annexure 1: Evidence of Level

NCrF/NSQF Level Descriptors	Key requirements of the job role/ outcome of the qualification	How the job role/ outcomes relate to the NCrF/NSQF level descriptor	NCrF/NSQF Level
Professional Theoretical Knowledge/Process	The Professional Theoretical/Practical knowledge required for the job role are: Install and configure IoT devices at customer premises - Analyze requirements for IoT devices - Install IoT devices at suitable points/locations - Configure devices to ensure effective data transfer - Test connections between nodes, gateways, and backend servers Perform level 1 troubleshooting of IoT devices - Troubleshoot IOT nodes/gateway - Troubleshoot communication devices Follow sustainable practices in telecom infrastructure installation - Segregate recyclable and refurbishable components - Dispose of waste - Use Energy-Efficient Methods - Follow environmental standards and compliance guidelines - Guide team members	A Telecom Technician – IoT Devices/Systems at NSQF Level 4 specializes in installing, configuring, and troubleshooting IoT devices. The role includes analyzing requirements, setting up devices, ensuring effective data transfer, and testing connections between nodes, gateways, and backend servers. Technicians perform Level 1 troubleshooting for IoT nodes, gateways, and communication devices, ensuring smooth network operations. Sustainability is integral to the role, involving waste segregation, energy-efficient methods, and compliance with environmental standards, while also guiding team members in sustainable practices. With expertise in IoT systems, network troubleshooting, and sustainability, this role aligns with NSQF Level 4, ensuring efficiency and environmental responsibility in telecom infrastructure.	4.0

Professional and Technical Skills/ Expertise/ Professional Knowledge	• Know how to install and configure IoT devices at customer premises, ensuring proper placement and effective data transfer. • Understand the principles of IoT communication, including node, gateway, and backend server interactions. • Know how to analyze technical requirements for IoT devices and identify suitable installation points. • Know how to test and validate device connectivity, ensuring seamless data flow between IoT components. • Understand Level 1 troubleshooting techniques for IoT nodes, gateways, and communication devices to diagnose and resolve basic faults. • Know how to use network testing tools (e.g., LAN cable tester, digital multimeter) for fault detection and system optimization. • Understand sustainable practices in telecom infrastructure, including energy-efficient methods, waste segregation, and proper disposal of electronic waste. • Know how to comply with environmental standards and follow industry regulations for sustainable IoT installations. • Understand best practices for guiding and mentoring team members in maintaining sustainability and operational efficiency. • Know how to implement and follow safety protocols during IoT installation and troubleshooting procedures. • Understand the operation of specialized tools and equipment (e.g., power drills, crimpers, and network toolkits) for IoT device setup and maintenance.	A Telecom Technician - IoT Devices/Systems requires a combination of technical knowledge and practical skills to install, configure, and maintain IoT devices in telecom infrastructure. Responsibilities include analyzing IoT requirements, installing devices at appropriate locations, configuring systems for effective data transfer, and testing connections between nodes, gateways, and backend servers. Technicians perform Level 1 troubleshooting of IoT nodes, gateways, and communication devices using specialized tools such as LAN cable testers and digital multimeters. They must follow sustainable practices, including waste segregation, recycling, energy efficiency, and compliance with environmental standards. The role involves guiding team members, ensuring adherence to safety protocols, and maintaining regulatory compliance. By ensuring technical efficiency, sustainable operations, and quality assurance, this role aligns with NSQF Level 4, reflecting autonomy, specialized expertise, and a commitment to environmental responsibility.	4.0
Employment Readiness & Entrepreneurship Skills & Mind-set/Professional Skill	• Identify opportunities for improving IoT device efficiency and optimizing telecom infrastructure. • Select appropriate tools, technologies, and methodologies for IoT device installation and troubleshooting. • Develop effective solutions for resolving technical issues related to IoT nodes, gateways, and communication devices. • Implement sustainable practices, including energy-efficient	Employment readiness and entrepreneurship skills for a Telecom Technician – IoT Devices/Systems focus on technical expertise, problem-solving, and sustainable practices. Technicians must identify system requirements, select suitable tools, and develop efficient processes for IoT device installation and troubleshooting. They are responsible for implementing energy-efficient methods,	4.0

	methods, waste segregation, and compliance with environmental regulations. • Evaluate system performance by testing connections between IoT devices, gateways, and backend servers to ensure effective data transfer. • Demonstrate problem-solving abilities by diagnosing and troubleshooting Level 1 issues in IoT devices and communication systems. • Apply technical knowledge to configure IoT devices accurately, ensuring operational efficiency and system reliability. • Adapt to emerging IoT technologies and industry best practices while maintaining quality standards and sustainability measures. • Communicate effectively with team members and stakeholders to guide sustainable practices and ensure regulatory compliance. • Manage tasks autonomously while prioritizing quality, safety, and environmental responsibility in all technical operations.	evaluating system performance, and ensuring compliance with environmental and industry regulations. Understanding advanced IoT technologies, maintaining accurate records, and guiding team members on sustainability measures are essential for professional growth. By demonstrating troubleshooting skills, applying innovative solutions, and fostering an entrepreneurial mindset, technicians can drive efficiency and support advancements in the telecom sector. Therefore, this role is classified at Level 4.	
Broad Learning Outcomes/Core Skill	The Broad Learning Outcomes/Core Skill are: • Apply technical knowledge to install, configure, and troubleshoot IoT devices and communication systems. • Demonstrate the ability to analyze system requirements and select appropriate tools for IoT device installation. • Implement effective data transfer processes by configuring IoT devices and testing connectivity between nodes, gateways, and backend servers. • Apply Level 1 troubleshooting techniques to identify and resolve issues in IoT nodes, gateways, and communication devices. • Follow sustainable practices by segregating recyclable components, disposing of waste	The Telecom Technician – IoT Devices/Systems role at NSQF Level 4 requires a practical, hands-on approach with expertise in installing, configuring, and troubleshooting IoT devices and communication systems. Technicians must perform routine and non-routine tasks, including analyzing system requirements, testing connections between nodes and gateways, and ensuring effective data transfer while maintaining compliance with safety and environmental standards. They should demonstrate problem-solving abilities, apply technical knowledge, and guide team members to enhance system efficiency. Additionally, their role involves selecting appropriate tools, implementing sustainability practices, and maintaining accurate records of compliance. Working under supervision, they contribute to structured processes, aligning with NSQF Level 4, which emphasizes applying	4.0

	responsibly, and using energy-efficient methods. • Ensure compliance with environmental regulations and maintain accurate records of sustainability measures. • Guide team members on best practices for IoT device installation, troubleshooting, and sustainability compliance. • Evaluate system performance, identify quality improvements, and optimize processes for better efficiency. • Demonstrate problem-solving skills to address technical issues and ensure reliable IoT system operations. • Apply safety protocols and industry standards to maintain a secure and compliant working environment.	technical expertise in familiar environments while advancing IoT system operations and sustainability.	
Responsibility	The responsibilities are: • Analyze requirements for IoT devices • Install IoT devices at suitable points/locations • Configure devices to ensure effective data transfer • Test connections between nodes, gateways, and backend servers • Troubleshoot IOT nodes/gateway • Troubleshoot communication devices • Segregate recyclable and refurbishable components • Dispose of waste • Use Energy-Efficient Methods • Follow environmental standards and compliance guidelines • Guide team members	A Telecom Technician – IoT Devices/Systems is responsible for the on-site installation, configuration, and maintenance of IoT devices (nodes). This includes setting up communication links between nodes and controllers (gateways) and ensuring connectivity to central servers or devices via external communication networks such as WiFi, 4G, or 5G on GSM/CDMA. The individual is also responsible for performing first-level Diagnostics and Investigation (DI) or Damage Recovery (DR).	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.	Smartphone	Pieces	4
2.	Router with power adaptor	Pieces	6
3.	Programmed microcontroller boards (Raspberry pi 3 and Arduino)	Pieces	5
4.	Network tool kit (cable stripper, crimper, Lan cable tester	Pieces	4
5.	Network cables (Ethernet cable CAT 6, USB cables, HDMI cables)	Pieces	10
6.	IoT enabled sensors (pressure sensor, temperature and humidity sensor, proximity sensor, touch sensor, surveillance cameras)	Pieces	4
7.	Hand tool kit (450 W Power drill, Phillips screw drivers, nose pliers, wrench adjustable, utility knife, electrical tester, measuring tape 5m and electrical tape)	Pieces	4
8.	Gateway	Pieces	3
9.	Ethernet cable connectors	Pieces	40
10.	Digital multimeter	Pieces	3
11.	Protective Gloves	Pieces	30
12.	Safety Goggles	Pieces	30
13.	E-Waste Segregation Bins	Pieces	1
14.	Circuit Testers	Pieces	5
15.	Labels	Pieces	30

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	9582210206	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)	62849 16580, 9876613092	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	9910430365	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	9868133345	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	7042479449	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	7030930950	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	9808251828	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,	8881474420	rashid.muhammad@globallogic.com	

				Noida, Uttar Pradesh 201304			
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	9822009128	info.mtipune@gmail.com	
10.	Amazon	Anshul Gupta	Program Manager	Bangalore	8826321655	anshigu@amazon.com	
11.	Stealth Mode Startup Company	Avadh Gupta	Founder, Co-Founder & Investor	Pune	7387794040	avadhmac@gmail.com	
12.	Ranitronics	Yakama Vijayasree Kumar	Founder & Technical Consultant	Villa 302, Namaha Rhythm, Road No. 1, Kavva Avenue, Bachupally, Hyderabad - 500090, Telangana	9810702568	info@ranitronics.com	
13	Eco Works	Deepali Sinha Khetriwal	Founder & CEO	C-601, Kalpataru Regency Phase 1, Kalyani Nagar, Pune 411006	9930891172	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	011 3520 9400	amit.agarwal@hfcl.com	
15	Tata Communication	Alka Asthana	Head of Regulatory Affairs	Next Gen Tower Outer Ring Road, GK-1, New Delhi - 110048	011 66505058	alka.asthanatelecom@gmail.com	
16	Reckitt Benckiser	Sachin Sharma	Demand Manager	Udyog Vihar, Phase V, Gurgaon, Haryana	9758573077	sachin.sharma@rb.com	
17	Sycamore Informatics	Rahul Kumar Kaushik	Product Manager	No. 6, 2nd Floor, 2nd Main, Arekere, Off Bannerghatta Road, Bangalore 560076	8859885973	rahul.kaushik@sycamoreinformatics.com	
18	Nokia	Saurabh Singh	Software Quality Engineer	L5 and L6 Building Manyata Embassy Business Park Outer Ring Road,	-	saurabh.9.singh@nokia.com	

				Nagawara 560045			
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	8439385780	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,	9927564461	rohit.sharma@aituniversal.com	
22	Ecom Express.in	Shekhar Poswal	Senior QA L1	10 th Floor, Ambience Corporate Tower II, Ambience Island, Gurugram 122001	8588820616	Shekhar.p@ecomexpress.in	
23	Paarminder Electronics Process Consultancy	Paarminder Singh	Consultant	New Delhi	9643353395	singhpaarminder@gmail.com	
24	Senryaku Consulting	Udit Kaushik	Co-founder	Senryaku Management Private Limited Address: UTC031, DLF The Ultima, Sector 81, Gurugram, HR 122004	9690909024	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	9599944652	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	10125	7087	506	253	506	253
2026	10125	7087	506	253	506	253
2027	13500	9450	675	338	675	338

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	April 2022 to March 2023	196	157	144									
4.0	April 2023 to March 2024	353	226	187									
4.0	April 2024 to March 2025	27575	17036	15246									

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/N6234: Install and configure IoT devices at customer premises	<i>Analyse requirements for IoT devices</i>	7	13	-	5
	PC1. identify various types of microprocessor boards (Arduino, Raspberry Pi, custom platforms) and microcontrollers used in IoT installations	1	3	-	1
	PC2. determine the functions, characteristics, and applicability of different types of IoT sensors (temperature, humidity, pressure, motion, surveillance cameras, etc.) and actuators	2	2	-	1
	PC3. select appropriate short-range (Bluetooth, Zigbee, Wi-Fi) and long-range (5G, NB-IoT, LoRaWAN) communication protocols for IoT applications	1	2	-	1
	PC4. check the components, pin configurations, and interconnectivity provisions of microcontroller boards for input/output and power supply	1	3	-	1
	PC5. differentiate between IoT nodes and gateways, assessing their roles in data transmission and network management	2	3	-	1
	<i>Install IoT devices at suitable points/locations</i>	9	10	-	5

	PC6. determine optimal installation points based on environmental factors, power supply availability, and network signal strength	2	2	-	1
	PC7. establish communication line connectivity using suitable nodes, gateways, Ethernet, 5G, NB-IoT, or Wi-Fi networks	2	2	-	1
	PC8. mount IoT devices securely at identified locations using industry-approved techniques and tools	1	2	-	1
	PC9. connect and secure power supply sources while ensuring proper grounding and compliance with safety standards	2	1	-	1
	PC10. implement signal strength testing and RF spectrum analysis to optimize IoT device placement	2	3	-	1
	<i>Configure devices to ensure effective data transfer</i>	<i>7</i>	<i>11</i>		<i>5</i>
	PC11. set up appropriate connectivity options on microcontroller boards for seamless data transfer	2	2	-	1
	PC12. use compatible cable connectors and microcontrollers to link IoT devices with data transfer interfaces (desktop/laptop/IoT gateway)	1	3	-	1
	PC13. install and configure firmware/software frameworks that enable IoT device communication with cloud platforms (AWS IoT Core, Azure IoT Hub, Google Cloud IoT)	1	1	-	1
	PC14. compile and upload software code to microcontrollers, ensuring compatibility with communication protocols	1	2	-	1
	PC15. debug software errors and optimize system performance using emulators and network testing tools	2	3	-	1
	<i>Test connections between nodes, gateways, and backend servers</i>	<i>7</i>	<i>16</i>	<i>-</i>	<i>5</i>
	PC16. verify proper execution of installed software by setting up nodes and gateways correctly	2	2	-	1
	PC17. validate data transfer between devices using system logs, LED indicators, or real-time dashboards	1	3	-	1
	PC18. establish effective connectivity between IoT gateways and backend cloud platforms or local networks	1	4	-	1
	PC19. perform network performance testing to detect latency, packet loss, or interference issues	1	4	-	1
	PC20. confirm data reception at the backend server and escalate unresolved connectivity issues	2	3	-	1
	Total Marks	30	50	-	20
TEL/N6236: Perform level 1 troubleshooting of IoT devices	<i>Troubleshoot IOT nodes/gateway</i>	<i>19</i>	<i>23</i>	<i>-</i>	<i>10</i>
	PC1. set up a test environment and create a structured troubleshooting plan	3	5	-	2
	PC2. verify connectivity between sensors, microcontrollers, and other components using diagnostic tools	5	5	-	2
	PC3. inspect all wiring, pin configurations, and power supply connections for faults	2	2	-	2
	PC4. reload or update software/firmware on IoT nodes and gateways	4	4	-	2
	PC5. check onboard memory storage and validate stored sensor data	3	4	-	1
	PC6. maintain accurate logs of performance tests and corrective actions	2	3	-	1
	<i>Troubleshoot communication devices</i>	<i>11</i>	<i>27</i>	<i>-</i>	<i>10</i>

	PC7. inspect and verify the functionality of communication modules (Wi-Fi, 5G, NB-IoT, LoRaWAN)	2	5	-	2
	PC8. reconfigure device credentials, security settings, and network authentication	1	6	-	1
	PC9. measure communication link performance between IoT nodes and gateways	3	4	-	2
	PC10. perform protocol-level debugging for MQTT, CoAP, HTTP	1	5	-	1
	PC11. reset network configurations and conduct connectivity tests	3	2	-	2
	PC12. escalate unresolved technical issues to the engineering team	1	5	-	2
	Total Marks	30	50	-	20
TEL/N9105: Follow sustainable practices in telecom infrastructure installation	<i>Segregate recyclable and refurbishable components</i>	<i>6</i>	<i>12</i>	<i>-</i>	<i>6</i>
	PC1. identify telecom components suitable for recycling or refurbishment	2	4	-	2
	PC2. sort electronic and non-electronic waste based on disposal protocols	2	4	-	2
	PC3. label and store recyclable and refurbishable components separately	2	4	-	2
	<i>Dispose of waste</i>	<i>6</i>	<i>10</i>	<i>-</i>	<i>5</i>
	PC4. follow approved procedures for the safe disposal of hazardous and non-hazardous waste	2	4	-	2
	PC5. coordinate with authorized e-waste recycling units or certified disposal agencies	1	3	-	2
	PC6. handle batteries, cables, and electronic circuits safely to prevent environmental hazards	1	3	-	1
	<i>Use Energy-Efficient Methods</i>	<i>6</i>	<i>10</i>	<i>-</i>	<i>3</i>
	PC7. select and use energy-efficient tools and equipment during telecom installations	2	4	-	1
	PC8. apply best practices to minimize energy consumption	2	3	-	1
	PC9. position and install telecom infrastructure to optimize efficiency and sustainability	2	3	-	1
	<i>Follow environmental standards and compliance guidelines</i>	<i>8</i>	<i>12</i>	<i>-</i>	<i>4</i>
	PC10. adhere to national and international environmental regulations for telecom infrastructure installation	2	3	-	1
	PC11. maintain records of waste disposal, recycling, and sustainability measures	2	3	-	1
	PC12. assist in periodic audits to assess compliance with green standards	2	3	-	1
	PC13. follow workplace sustainability protocols and report non-compliance	2	3	-	1
	<i>Guide team members</i>	<i>4</i>	<i>6</i>	<i>-</i>	<i>2</i>
	PC14. guide team members on sustainable telecom installation guidelines and practices	2	3	-	1
	PC15. encourage environmentally responsible work habits	2	3	-	1
	Total Marks	30	50	-	20
DGT/VSQ/N0101: Employability Skills (30 Hours)	<i>Introduction to Employability Skills</i>	<i>1</i>	<i>1</i>	<i>-</i>	<i>-</i>
	PC1. understand the significance of employability skills in meeting the job requirements	-	-	-	-
	<i>Constitutional values – Citizenship</i>	<i>1</i>	<i>1</i>	<i>-</i>	<i>-</i>
	PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices	-	-	-	-
	<i>Becoming a Professional in the 21st Century</i>	<i>1</i>	<i>3</i>	<i>-</i>	<i>-</i>

PC3. explain 21st Century Skills such as Self- Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc.	-	-	-	-
<i>Basic English Skills</i>	2	3	-	-
PC4. speak with others using some basic English phrases or sentences	-	-	-	-
<i>Communication Skills</i>	1	1	-	-
PC5. follow good manners while communicating with others	-	-	-	-
PC6. work with others in a team	-	-	-	-
<i>Diversity & Inclusion</i>	1	1	-	-
PC7. communicate and behave appropriately with all genders and PwD	-	-	-	-
PC8. report any issues related to sexual harassment	-	-	-	-
<i>Financial and Legal Literacy</i>	3	4	-	-
PC9. use various financial products and services safely and securely	-	-	-	-
PC10. calculate income, expenses, savings etc.	-	-	-	-
PC11. approach the concerned authorities for any exploitation as per legal rights and laws	-	-	-	-
<i>Essential Digital Skills</i>	4	6	-	-
PC12. operate digital devices and use its features and applications securely and safely	-	-	-	-
PC13. use internet and social media platforms securely and safely	-	-	-	-
<i>Entrepreneurship</i>	3	5	-	-
PC14. identify and assess opportunities for potential business	-	-	-	-
PC15. identify sources for arranging money and associated financial and legal challenges	-	-	-	-
<i>Customer Service</i>	2	2	-	-
PC16. identify different types of customers	-	-	-	-
PC17. identify customer needs and address them appropriately	-	-	-	-
PC18. follow appropriate hygiene and grooming standards	-	-	-	-
<i>Getting ready for apprenticeship & Jobs</i>	1	3	-	-
PC19. create a basic biodata	-	-	-	-
PC20. search for suitable jobs and apply	-	-	-	-
PC21. identify and register apprenticeship opportunities as per requirement	-	-	-	-
Total Marks	20	30	-	-
Grand Total	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
IoT	Internet of Things
NB-IoT	Narrowband Internet of Things
LoRaWAN	Long Range Wide Area Network
LED	Light Emitting Diode
ISO	International Organization for Standardization
GDPR	General Data Protection Regulation
NIST	National Institute of Standards and Technology
AES	Advanced Encryption Standard
MQTT	Message Queuing Telemetry Transport
CoAP	Constrained Application Protocol
HTTP	HyperText Transfer Protocol
LAN	Local Area Network

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