



# Model Curriculum

**QP Name: Infrastructure Technician - 5G Networks**

**QP Code: TEL/Q4201**

**Version: 2.0**

**NSQF Level: 4**

**Model Curriculum Version: 1.0**

Telecom Sector Skill Council || 3rd Floor, Plot No 126, Sector – 44  
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# Training Parameters

<b>Sector</b>	Telecom
<b>Sub-Sector</b>	Passive Infrastructure
<b>Occupation</b>	Network (Passive) Installation
<b>Country</b>	India
<b>NSQF Level</b>	4
<b>Aligned to NCO/ISCO/ISIC Code</b>	NCO-2015/NA
<b>Minimum Educational Qualification and Experience</b>	<p>12th grade pass  <b>OR</b>  Completed 2nd year of 3-year diploma (after 10th)  <b>OR</b>  Pursuing 2nd year of 3-year regular Diploma (after 10th)  <b>OR</b>  10th grade pass with two years of any combination of NTC/NAC/CITS or equivalent.  <b>OR</b>  8th pass plus 2-year NTC plus 1-Year NAC plus 1-Year CITS  <b>OR</b>  10th grade pass and pursuing continuous schooling with No Experience required  <b>OR</b>  Previous relevant Qualification of NSQF Level 3.0 with 3-year relevant experience</p>
<b>Pre-Requisite License or Training</b>	NA
<b>Minimum Job Entry Age</b>	17 Years
<b>Last Reviewed On</b>	31/03/2022
<b>Next Review Date</b>	31/03/2025
<b>NSQC Approval Date</b>	31/03/2022
<b>QP Version</b>	2.0
<b>Model Curriculum Creation Date</b>	31/03/2022
<b>Model Curriculum Valid Up to Date</b>	31/03/2025
<b>Model Curriculum Version</b>	1.0
<b>Minimum Duration of the Course</b>	570 Hours
<b>Maximum Duration of the Course</b>	570 Hours

## Program Overview

This section summarizes the end objectives of the program along with its duration.

### Training Outcomes

At the end of the program, the learner should have acquired the listed knowledge and skills to:

- Demonstrate the process of installing the relevant 5G network infrastructure.
- Demonstrate the process of installing and setting up the passive infrastructure equipment with the 5G equipment.
- Demonstrate the process of maintaining the passive infrastructure equipment.
- Explain the importance of implementing effective communication and coordination at work.
- Explain the importance of managing work and resources and ensuring health and safety at work.
- Demonstrate the process of maintaining the 5G network infrastructure.

### Compulsory Modules

The table lists the modules and their duration corresponding to the Compulsory NOS of the QP.

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
<b>Bridge Module</b>	<b>20:00</b>	<b>10:00</b>	<b>00:00</b>	<b>00:00</b>	<b>30:00</b>
Module 1: Introduction to the role of an Infrastructure Technician – 5G Networks	20:00	10:00	00:00	00:00	30:00
<b>TEL/N4202: Prepare for the installation of 5G network infrastructure NOS Version-1.0 NSQF Level- 4</b>	<b>50:00</b>	<b>60:00</b>	<b>40:00</b>	<b>00:00</b>	<b>150:00</b>
Module 2: Process of preparing for the installation of 5G network infrastructure	50:00	60:00	40:00	00:00	150:00
<b>TEL/N4203: Install and set up the passive infrastructure equipment with the 5G equipment NOS Version-1.0 NSQF Level- 4</b>	<b>50:00</b>	<b>60:00</b>	<b>40:00</b>	<b>00:00</b>	<b>150:00</b>
Module 3: Process of installing and setting up the passive infrastructure	50:00	60:00	40:00	00:00	150:00

equipment with the 5G equipment					
<b>TEL/N4204: Maintain passive infrastructure equipment NOS Version-1.0 NSQF Level- 4</b>	<b>40:00</b>	<b>40:00</b>	<b>40:00</b>	<b>00:00</b>	<b>120:00</b>
Module 4: Process of maintaining the passive infrastructure equipment	40:00	40:00	40:00	00:00	120:00
<b>TEL/N9101: Organise Work and Resources as per Health and Safety Standards NOS Version-1.0 NSQF Level-4</b>	<b>10:00</b>	<b>20:00</b>	<b>00:00</b>	<b>00:00</b>	<b>30:00</b>
Module 5: Process of organising work and resources as per health and safety standards	10:00	20:00	00:00	00:00	30:00
<b>TEL/N9102: Interact Effectively with Team Members and Customers NOS Version-1.0 NSQF Level-4</b>	<b>10:00</b>	<b>20:00</b>	<b>00:00</b>	<b>00:00</b>	<b>30:00</b>
Module 6: Process of interacting effectively with team members and customers	10:00	20:00	00:00	00:00	30:00
DGT/VSQ/N0102 Employability Skills (60 Hours) NSQF Level 4	60:00	00:00	00:00	00:00	60:00
<b>Total Duration</b>	<b>240:00</b>	<b>210:00</b>	<b>120:00</b>	<b>00:00</b>	<b>570:00</b>

# Module Details

## Module 1: Introduction to the role of an Infrastructure Technician – 5G Networks

### Bridge Module

#### Terminal Outcomes:

- Discuss the job role of an Infrastructure Technician – 5G Networks.
- Explain the scope of work for an Infrastructure Technician – 5G Networks.

<b>Duration: 20:00</b>	<b>Duration: 10:00</b>
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• Describe the size and scope of the Telecom industry and its sub-sectors.</li> <li>• Discuss the role and responsibilities of an Infrastructure Technician – 5G Networks.</li> <li>• Identify various employment opportunities for an Infrastructure Technician – 5G Networks.</li> <li>• Describe the process workflow in the organization and the role of Infrastructure Technician – 5G Networks in the process.</li> <li>• List the various daily, weekly, monthly operations/activities that take place at the site under an Infrastructure Technician – 5G Networks.</li> </ul>	<ul style="list-style-type: none"> <li>• Role play based on case studies, outlining the scope, responsibilities, and challenges of an Infrastructure Technician – 5G Networks.</li> <li>• Discuss the organisational policies on workplace ethics, managing sites, quality standards, personnel management and public relations (PR).</li> <li>• Analyse the requirements for the course and prepare for the pre-requisites of the course.</li> </ul>
<b>Classroom Aids</b>	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop, Video Films	
<b>Tools, Equipment and Other Requirements</b>	
NA	

## Module 2: Process of preparing for the installation of 5G network infrastructure

*Mapped to TEL/N4202 v1.0*

### Terminal Outcomes:

- Describe the process of conducting the site survey.
- Describe the process of preparing for the installation of 5G network infrastructure.

<b>Duration: 50:00</b>	<b>Duration: 60:00</b>
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• Explain the importance of determining the scope of work, including the identification of site selected for the installation of 5G network infrastructure.</li> <li>• List the relevant equipment, accessories, tools and equipment required for the installation of 5G network infrastructure.</li> <li>• Explain the importance of checking the equipment, accessories, tools and equipment to ensure they are in working condition.</li> <li>• State the authorisation required for the installation of telecom infrastructure at a site and the relevant paperwork to be completed.</li> <li>• List the appropriate tools and equipment required for the installation of telecom infrastructure.</li> <li>• Explain how to co-ordinate with the relevant personnel for the erection of 5G cell towers.</li> <li>• Describe the recommended methods and techniques to be followed for installing, positioning and securing the telecom equipment.</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate how to conduct the relevant checks to ensure the equipment, accessories, tools and equipment are in working condition.</li> <li>• Show how to assemble the required equipment and configure the networking gear for infrastructure installation.</li> <li>• Prepare sample documents regarding the network infrastructure preparation activities.</li> </ul>
<b>Classroom Aids</b>	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
<b>Tools, Equipment and Other Requirements</b>	
Antenna test Systems & Over-The-Air (OTA) Chambers, Broadband Amplifiers	

## Module 3: Process of installing and setting up the passive infrastructure equipment with the 5G Equipment

*Mapped to TEL/N4203 v1.0*

### Terminal Outcomes:

- Demonstrate the process of installing and setting up the passive infrastructure equipment with the 5G equipment.

<b>Duration: 50:00</b>	<b>Duration: 60:00</b>
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• List various passive infrastructure equipment installed at telecom infrastructure sites, such as battery bank, Switched-mode Power Supply (SMPS) unit, Power Interface Unit (PIU), Diesel Generator (DG) set, Climate Control Unit for installation at the 5G network infrastructure site.</li> <li>• Explain the importance of performing the relevant tests on the passive infrastructure equipment before installation to ensure their proper functioning.</li> <li>• Describe the process of installing the battery bank, battery charger, and battery stand.</li> <li>• Explain the importance of ensuring an adequate number of batteries in the battery bank as per the power requirements.</li> <li>• Describe the process of testing the battery to ensure it can get charged without any issues.</li> <li>• Describe the process of installing the SMPS unit and the relevant test to be performed on the SMPS unit to ensure it can provide the regulated output voltage.</li> <li>• Describe the process of installing the PIU to protect against wide fluctuations and surges in the mains supply.</li> <li>• Explain the importance of ensuring uninterrupted power supply to the 5G network and transmission equipment.</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate the process of performing the relevant tests on the passive infrastructure equipment to ensure their proper functioning.</li> <li>• Demonstrate the process of installing the battery bank, battery charger, and battery stand following the manufacturer’s instructions, ensuring an adequate number of batteries as per the power requirements.</li> <li>• Demonstrate the process of carrying out charging of the battery to ensure it is able to get charged without any issues.</li> <li>• Demonstrate the process of installing the SMPS unit following the manufacturer’s instructions.</li> <li>• Demonstrate the process of performing the relevant tests on the SMPS unit to ensure it is able to provide regulated output voltage, as required.</li> <li>• Demonstrate the process of installing the PIU to protect against wide fluctuations and surges in the mains supply.</li> <li>• Demonstrate the process of installing the DG set following the manufacturer’s instructions.</li> <li>• Demonstrate the process of installing air cleaner for the dusty environments and anti-condensation heaters in the humid/ coastal atmosphere.</li> <li>• Demonstrate the process of installing the Climate Control Units to maintain</li> </ul>



<ul style="list-style-type: none"> <li>• Explain the importance of installing the passive infrastructure equipment at the appropriate locations as per the manufacturer’s instructions.</li> <li>• Explain the importance of installing the DG set at an appropriate location/room, ensuring appropriate ventilation, no obstruction of the natural airflow and minimum dust.</li> <li>• Explain the importance of ensuring adequate space to good ventilation, and ease of operation and serviceability of the equipment.</li> <li>• Describe the process of installing the DG set.</li> <li>• Explain the importance and process of installing air cleaner for the dusty environments and anti-condensation heaters in the humid/ coastal atmosphere.</li> <li>• Explain the importance of installing the Climate Control Units to maintain the appropriate temperature at the telecom base station and telecom shelter for the efficient functioning of telecom and related equipment.</li> <li>• Describe the process of carrying out cabling for the installed equipment, ensuring compatibility with the equipment.</li> <li>• Describe the process of setting up the connection between various telecom equipment and power source, ensuring safe and uninterrupted power supply.</li> <li>• List the relevant tests to be performed on the passive infrastructure equipment to ensure their correct functioning.</li> <li>• Describe the process of setting up power connection at the site to provide power supply to various cell tower equipment.</li> <li>• Describe the process of installing the power supply unit for gNodeB/eNodeB and the importance of ensuring its compatibility with the</li> </ul>	<p>the appropriate temperature at the telecom base station and telecom shelter for the efficient functioning of telecom and related equipment.</p> <ul style="list-style-type: none"> <li>• Demonstrate the process of carrying out cabling for the installed equipment, ensuring compatibility with the equipment.</li> <li>• Demonstrate the process of setting up the connection between various telecom equipment and power source, ensuring safe and uninterrupted power supply.</li> <li>• Demonstrate the process of performing the relevant tests on the installed equipment to ensure their correct functioning.</li> <li>• Demonstrate the process of installing the power supply unit for gNodeB/eNodeB, ensuring its compatibility with the equipment.</li> <li>• Demonstrate the process of installing a heat sink to maintain an appropriate temperature in the gNodeB/eNodeB by facilitating the flow of heat away from the equipment.</li> <li>• Show how to connect the gNodeB / eNodeB with the power supply unit and heat sink using the appropriate types of cables, ensuring a secure connection between the equipment.</li> <li>• Demonstrate the process of setting up a power connection between the 5G base station and power source, ensuring the recommended power supply for the equipment.</li> <li>• Demonstrate the process of setting up the power connection for the 5G base stations, 5G Radio Frequency (RF) transceivers and Remote Radio Unit (RRU), ensuring to adhere to their power requirements.</li> <li>• Demonstrate the process of setting up a connection between the emergency power supply equipment and the 5G network and transmission</li> </ul>
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<p>equipment.</p> <ul style="list-style-type: none"> <li>• Explain the importance and process of installing a heat sink to maintain an appropriate temperature in the gNodeB/eNodeB by facilitating the flow of heat away from the equipment.</li> <li>• Describe the process of connecting the gNodeB/eNodeB with the power supply unit and heat sink using the appropriate types of cables.</li> <li>• Explain the importance of ensuring a secure connection between various equipment.</li> <li>• Explain the importance of ensuring a secure connection between the power supply units and the mains power supply.</li> <li>• Describe the process of setting up a power connection between the 5G base station and power source.</li> <li>• Explain the importance of ensuring the recommended power supply for various equipment.</li> <li>• Explain the importance of using the recommended types of cables for the power supply and ensuring adequate protection of the cables from weather conditions and wear and tear.</li> <li>• Describe the process of setting up the power connection for the 5G base stations, 5G Radio Frequency (RF) transceivers and Remote Radio Unit (RRU).</li> <li>• Describe the process of setting up a connection between the emergency power supply equipment and the 5G network and transmission equipment.</li> <li>• Explain the importance and process of installing shelter(s) and telecom ducts for the protection of passive infrastructure equipment and cabling.</li> <li>• Explain the use of relevant PPE to</li> </ul>	<p>equipment.</p> <ul style="list-style-type: none"> <li>• Demonstrate the process of installing shelter(s) and telecom ducts for the protection of passive infrastructure equipment and cabling.</li> <li>• Demonstrate how to set up power connection at the site to provide power supply to various cell tower equipment.</li> <li>• Demonstrate the use of relevant Personal Protection Equipment (PPE) to ensure protection from electricity.</li> <li>• Demonstrate the process of checking all the equipment for correct functioning after establishing power connections and carrying out troubleshooting for any identified issues.</li> </ul>
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<p>ensure protection from electricity.</p> <ul style="list-style-type: none"> <li>• Explain the importance of checking all the equipment for correct functioning after establishing power connections and the appropriate out troubleshooting to be carried out for the common issues.</li> </ul>	
<p><b>Classroom Aids</b></p>	
<p>Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop</p>	
<p><b>Tools, Equipment and Other Requirements</b></p>	
<p>Power Interface Unit (PIU), Switched-mode Power Supply (SMPS), Battery Bank, Battery Charger</p>	

## Module 4: Process of maintaining the passive infrastructure equipment

### Mapped to TEL/N4204 v1.0

#### Terminal Outcomes:

- Demonstrate the process of maintaining the passive infrastructure equipment.
- Describe the process of maintaining and reviewing the maintenance records.

<b>Duration: 40:00</b>	<b>Duration: 40:00</b>
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• Explain the importance of checking the passive infrastructure equipment regularly to ensure their correct functioning</li> <li>• Describe the process and importance of carrying out preventive maintenance of various passive infrastructure equipment as per the recommended schedule</li> <li>• Explain the importance of ensuring batteries are correctly positioned in the battery bank</li> <li>• Explain the importance of checking the equipment cables to ensure they are intact</li> <li>• Explain the importance of testing the batteries to ensure they can hold the charge and the appropriate troubleshooting to be carried out</li> <li>• Explain the importance and process of checking the SMPS to ensure it can control power at high frequencies and can provide a stable and efficient power supply to telecom equipment, and the appropriate troubleshooting to be carried out</li> <li>• List the relevant tests to be performed on the PIU to ensure it is able to handle fluctuations and surges in the mains supply appropriately and the appropriate troubleshooting to be carried out</li> <li>• State the common issues experienced with a DG set, such as low oil pressure, high water temperature, low water level, overload, start failure, short circuit, phase loss, high</li> </ul>	<ul style="list-style-type: none"> <li>• Show how to check the passive infrastructure equipment, such as battery bank, SMPS, PIU, DG set, Climate Control Units regularly to ensure their correct functioning</li> <li>• Demonstrate the process of carrying out preventive maintenance of the passive infrastructure equipment as per the recommended schedule.</li> <li>• Show how to check the batteries in the battery bank to ensure they are correctly positioned.</li> <li>• Demonstrate the process of testing the batteries to ensure they can hold the charge, and carry out appropriate troubleshooting, as required</li> <li>• Demonstrate the process of carrying out troubleshooting for any issues identified with the SMPS.</li> <li>• Demonstrate the process of performing the relevant tests on the PIU to ensure it is able to handle fluctuations and surges in the mains supply appropriately.</li> <li>• Demonstrate the process of carrying out appropriate troubleshooting for the issues identified with the PIU.</li> <li>• Demonstrate the process of carrying out appropriate troubleshooting as per the manufacturer’s instructions to resolve the issues identified with the DG set.</li> <li>• Demonstrate the process of installing new passive infrastructure equipment to replace the damaged or irreparable equipment.</li> </ul>

<p>voltage, voltage loss, low frequency, low battery voltage, high battery voltage, low oil level, etc.</p> <ul style="list-style-type: none"> <li>• Describe the appropriate troubleshooting to be carried out to resolve the issues identified with the DG set</li> <li>• List the appropriate checks to be performed on the climate control units to ensure their appropriate functioning and protection of the telecom equipment from heat damage and moisture</li> <li>• Explain the importance of using the manufacturer-recommended spare parts and maintenance tools during the equipment maintenance</li> <li>• Explain the importance and process of installing new passive infrastructure equipment to replace the damaged or irreparable equipment.</li> <li>• Explain the the importance of maintaining and reviewing the maintenance records to identify and resolve recurring issues.</li> </ul>	<ul style="list-style-type: none"> <li>• Prepare sample record of maintenance activities.</li> </ul>
<p><b>Classroom Aids</b></p>	
<p>Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop, Video Films</p>	
<p><b>Tools, Equipment and Other Requirements</b></p>	
<p>Switched-mode Power Supply (SMPS), Climate Control Unit, Fiber Distribution Hub, Resistive Load Bank, Artificial Load Tester.</p>	

## Module 5: Process of organising work and resources as per health and safety standards

*Mapped to NOS TEL/N9101 v1.0*

### Terminal Outcomes:

- Explain the importance of performing work as per quality standards.
- Explain the importance of maintaining a safe, healthy and secure working environment.
- Explain the importance of conserving material/energy/electricity.
- Describe the process of using effective waste management/recycling practices.

<b>Duration: 10:00</b>	<b>Duration: 20:00</b>
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• Explain various strategies pertinent to their field (such as internet searches, asking peers and managers, enrolling for courses and certifications, etc.) that can be used to pursue advancement in their skills.</li> <li>• State key performance indicators for the new tasks.</li> <li>• Describe feedback processes and formats.</li> <li>• Explain timelines and goals as well as their relevance to work allocated.</li> <li>• Explain the importance of quality and timely delivery of the product/service.</li> <li>• Explain the escalation matrix and its importance, especially in case of emergencies.</li> <li>• Explain various ways of time and cost management.</li> <li>• State the rules/regulations for maintaining health and safety at the workplace.</li> <li>• Explain the meaning of hazard, different types of health and safety hazards found in the workplace, risks and threats based on the nature of work.</li> <li>• Explain the relevant signage, warnings, labels or descriptions on equipment, etc. while carrying out work activities.</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate how to record/document tasks completed as per the requirements within specific timelines.</li> <li>• Show how to analyse problems accurately and communicate different possible solutions to the problem.</li> <li>• Demonstrate how to report any identified breaches in health, safety, and security policies and procedures to the designated person.</li> <li>• Demonstrate the process of using safety materials such as goggles, gloves, earplugs, caps, ESD pins, covers, shoes, etc.</li> <li>• Demonstrate the process of handling heavy and hazardous materials with care, while maintaining appropriate posture.</li> <li>• Demonstrate the process of carrying out routine cleaning of tools, machines and equipment.</li> <li>• Demonstrate ways to optimise the use of electricity/energy in various tasks/activities/processes.</li> <li>• Demonstrate the process of performing periodic checks of the functioning of the equipment/machine and rectify wherever required.</li> <li>• Demonstrate ways to use electrical</li> </ul>

<ul style="list-style-type: none"> <li>• Describe the procedures to report breaches in health, safety and security.</li> <li>• Describe the organisation's procedures for different emergency situations and the importance of following the same.</li> <li>• Describe different methods of cleaning, disinfection, sterilisation, and sanitisation.</li> <li>• Explain the significance of personal hygiene practice including hand hygiene.</li> <li>• Explain the path of disease transmission.</li> <li>• Describe the correct method of donning and doffing of PPE.</li> <li>• Explain different ways of managing resources and material efficiently.</li> <li>• Explain common electrical problems and common practices of conserving electricity.</li> <li>• Explain categorisation of waste into dry, wet, recyclable, non-recyclable and items of single-use plastics and use of different colours of dustbins.</li> <li>• Describe the organisation's procedures for minimising waste.</li> <li>• Explain waste management and methods of waste disposal.</li> <li>• State common sources of pollution and ways to minimise it.</li> </ul>	<p>equipment and appliances properly.</p> <ul style="list-style-type: none"> <li>• Demonstrate the process of disposing non-recyclable and hazardous waste as per recommended processes.</li> </ul>
<p><b>Classroom Aids:</b></p>	
<p>Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop</p>	
<p><b>Tools, Equipment and Other Requirements</b></p>	
<p>Personal Protective Equipment, Hygiene Equipment and Materials like Sanitizer, Soap, Mask, etc.</p>	

## Module 6: Process of interacting effectively with team members and customers

*Mapped to TEL/N9102 v1.0*

### Terminal Outcomes:

- Explain the importance of interacting effectively with superiors, colleagues and customers.
- Explain the need of respecting differences of gender and ability.

<b>Duration: 10:00</b>	<b>Duration: 20:00</b>
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• Explain the organisation's policies on dress code, workplace timings, workplace behaviour, performance management, incentives, delivery standards, information security, etc.</li> <li>• Explain the organisation's hierarchy and escalation matrix</li> <li>• Explain the importance of effective and different means of communication and establishing good working relationships with colleagues and superiors.</li> <li>• Explain the importance of helping colleagues with problems, in order to meet quality and time standards as a team.</li> <li>• Describe different means and methods of communication.</li> <li>• State different types of information that colleagues might need and the importance of providing this information in an appropriate manner.</li> <li>• Describe the organization's policies and procedures for working with colleagues and superiors.</li> <li>• Explain the importance of understanding the consequences of gender based behaviour.</li> <li>• Describe gender based concepts, issues and legislation</li> <li>• State the organization standards and guidelines to be followed for PwD and knowledge about laws, acts and provisions defined for PwD by the</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate ways to communicate professionally using different techniques such as face-to-face, telephonic and written means.</li> <li>• Demonstrate appropriate verbal and non-verbal communication while interacting with People with Disability (PwD).</li> </ul>



<p>statutory bodies and the right way to use them including various medical conditions associated with PwD</p> <ul style="list-style-type: none"> <li>• Explain the health and safety requirements at a workplace for PwD.</li> <li>• Describe the process of recruiting people for a particular job profile w.r.t PwD and gender.</li> <li>• Explain various government / private schemes and benefits available for PwD and information about various institutes working for PwD to enable in providing livelihood opportunities for PwD.</li> </ul>	
<p><b>Classroom Aids</b></p>	
<p>Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop</p>	
<p><b>Tools, Equipment and Other Requirements</b></p>	
<p>Relevant stationery, First Aid Kit and Equipment used in Medical Emergencies.</p>	

## Module 7: On-the-Job Training

### Mapped to Infrastructure Technician - 5G Networks

<b>Mandatory Duration: 120:00</b>	<b>Recommended Duration: 00:00</b>
<b>Location: On-Site</b>	
<p><b>Terminal Outcomes</b></p> <ol style="list-style-type: none"> <li>1. Describe the recommended methods and techniques to be followed for installing, positioning and securing the telecom equipment.</li> <li>2. Assemble the required equipment and configure the networking gear for infrastructure installation.</li> <li>3. Install the battery bank, battery charger, and battery stand following the manufacturer’s instructions, ensuring an adequate number of batteries as per the power requirements.</li> <li>4. Install the SMPS unit following the manufacturer’s instructions.</li> <li>5. Set up the connection between various telecom equipment and power source, ensuring safe and uninterrupted power supply.</li> <li>6. Carry out preventive maintenance of the passive infrastructure equipment as per the recommended schedule.</li> <li>7. Carry out appropriate troubleshooting as per the manufacturer’s instructions to resolve the issues identified with the DG set.</li> <li>8. Analyse problems accurately and communicate different possible solutions to the problem.</li> <li>9. Handle heavy and hazardous materials with care, while maintaining appropriate posture.</li> <li>10. Carry out routine cleaning of tools, machines and equipment.</li> <li>11. Dispose non-recyclable and hazardous waste as per recommended processes.</li> </ol>	

## Module 8: DGT/VSQ/N0102 Employability Skills (60 hours)

### Mapped to Infrastructure Technician - 5G Networks

**Mandatory Duration: 60:00**

**Location: On-Site**

S.No.	Module Name	Key Learning Outcomes	Duration (hours)
1.	Introduction to Employability Skills	<ul style="list-style-type: none"> <li>Discuss the Employability Skills required for jobs in various industries.</li> <li>List different learning and employability related GOI and private portals and their usage.</li> </ul>	1.5
2.	Constitutional values - Citizenship	<ul style="list-style-type: none"> <li>Explain the constitutional values, including civic rights and duties, citizenship, responsibility towards society and personal values and ethics such as honesty, integrity, caring and respecting others that are required to become a responsible citizen.</li> <li>Show how to practice different environmentally sustainable practices.</li> </ul>	1.5
3.	Becoming a Professional in the 21st Century	<ul style="list-style-type: none"> <li>Discuss importance of relevant 21st century skills.</li> <li>Exhibit 21st century skills like Self-Awareness, Behavior Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn etc. in personal or professional life.</li> <li>Describe the benefits of continuous learning.</li> </ul>	2.5
4.	Basic English Skills	<ul style="list-style-type: none"> <li>Show how to use basic English sentences for every day conversation in different contexts, in person and over the telephone.</li> <li>Read and interpret text written in basic English</li> <li>Write a short note/paragraph / letter/e -mail using basic English.</li> </ul>	10
5.	Career Development & Goal Setting	<ul style="list-style-type: none"> <li>Create a career development plan with well-defined short- and long-term goals.</li> </ul>	2
6.	Communication Skills	<ul style="list-style-type: none"> <li>Demonstrate how to communicate effectively using verbal and nonverbal communication etiquette.</li> <li>Explain the importance of active listening for effective communication.</li> <li>Discuss the significance of working collaboratively with others in a team.</li> </ul>	5
7.	Diversity & Inclusion	<ul style="list-style-type: none"> <li>Demonstrate how to behave, communicate, and conduct oneself appropriately with all genders and PwD.</li> <li>Discuss the significance of escalating sexual harassment issues as per POSH act.</li> </ul>	2.5
8.	Financial and Legal Literacy	<ul style="list-style-type: none"> <li>Outline the importance of selecting the right financial institution, product, and service.</li> <li>Demonstrate how to carry out offline and online financial transactions, safely and securely.</li> <li>List the common components of salary and compute income, expenditure, taxes, investments etc.</li> <li>Discuss the legal rights, laws, and aids.</li> </ul>	5

9.	Essential Digital Skills	<ul style="list-style-type: none"> <li>Describe the role of digital technology in today's life.</li> <li>Demonstrate how to operate digital devices and use the associated applications and features, safely and securely.</li> <li>Discuss the significance of displaying responsible online behavior while browsing, using various social media platforms, e-mails, etc., safely and securely.</li> <li>Create sample word documents, excel sheets and presentations using basic features.</li> <li>Utilize virtual collaboration tools to work effectively.</li> </ul>	10
10.	Entrepreneurship	<ul style="list-style-type: none"> <li>Explain the types of entrepreneurship and enterprises.</li> <li>Discuss how to identify opportunities for potential business, sources of funding and associated financial and legal risks with its mitigation plan.</li> <li>Describe the 4Ps of Marketing-Product, Price, Place and Promotion and apply them as per requirement.</li> <li>Create a sample business plan, for the selected business opportunity.</li> </ul>	7
11	Customer Service	<ul style="list-style-type: none"> <li>Describe the significance of analyzing different types and needs of customers.</li> <li>Explain the significance of identifying customer needs and responding to them in a professional manner.</li> <li>Discuss the significance of maintaining hygiene and dressing appropriately.</li> </ul>	5
12	Getting Ready for Apprenticeship & Jobs	<ul style="list-style-type: none"> <li>Create a professional Curriculum Vitae (CV).</li> <li>Use various offline and online job search sources such as employment exchanges, recruitment agencies, and job portals respectively.</li> <li>Discuss the significance of maintaining hygiene and confidence during an interview.</li> <li>Perform a mock interview.</li> <li>List the steps for searching and registering for apprenticeship opportunities.</li> </ul>	8

**LIST OF TOOLS & EQUIPMENT FOR EMPLOYABILITY SKILLS**

S No.	Name of the Equipment	Quantity
1.	Computer (PC) with latest configurations – and Internet connection with standard operating system and standard word processor and worksheet software (Licensed) (all software should either be latest version or one/two version below)	As required
2.	UPS	As required
3.	Scanner cum Printer	As required
4.	Computer Tables	As required
5.	Computer Chairs	As required
6.	LCD Projector	As required
7.	White Board 1200mm x 900mm	As required

*Note: Above Tools & Equipment not required, if Computer LAB is available in the institute.*

# Annexure

## Trainer Requirements (*Infrastructure Technician - 5G Networks*)

Trainer Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
B.E./B.Tech	Electronics/Telecom/IT and other relevant fields	1	Telecom Infrastructure - 5G Networks	0	NA	Eligible for ToT Program

Trainer Certification	
Domain Certification	Platform Certification
Certified for Job Role “ <b>Infrastructure Technician - 5G Networks</b> ”, mapped to QP: “ <b>TEL/Q4201, v2.0</b> ”, Minimum accepted score is 80%	Recommended that the Trainer is certified for the Job Role: “ <b>Trainer (VET and Skills)</b> ”, mapped to the Qualification Pack: “ <b>MEP/Q2601, v2.0</b> ”. The minimum accepted score as per MEPSC guidelines is 80%.

## Assessor Requirements (*Infrastructure Technician - 5G Networks*)

Assessor Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training/Assessment Experience		Remarks
		Years	Specialization	Years	Specialization	
B.E./B.Tech	Electronics/Telecom/IT and other relevant fields	1	Telecom Infrastructure - 5G Networks	0	NA	Eligible for ToA Program

Assessor Certification	
Domain Certification	Platform Certification
Certified for Job Role “ <b>Infrastructure Technician -5G Networks</b> ”, mapped to QP: “ <b>TEL/Q4201, v2.0</b> ”, Minimum accepted score is 80%	Certified for the Job Role: “ <b>Assessor (VET and Skills)</b> ”, mapped to the Qualification Pack: “ <b>MEP/Q2701, v2.0</b> ”, with a minimum score of 80%.

## Trainer Requirements (Employability Skills 60 hours)

Trainer Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
Graduate/CITS	Any discipline			2	Teaching experience	Prospective ES trainer should:
Current ITI trainers	Employability Skills Training (3 days full-time course done between 2019-2022)					<ul style="list-style-type: none"> <li>• have good communication skills</li> <li>• be well versed in English</li> <li>• have digital skills</li> <li>• have attention to detail</li> <li>• be adaptable</li> <li>• have willingness to learn</li> </ul>
Certified current EEE trainers (155 hours)	from Management SSC (MEPSC)					
Certified Trainer	Qualification Pack: Trainer (MEP/Q0102)					

Trainer Certification	
Domain Certification	Platform Certification
Certified in 60-hour Employability NOS (2022), with a minimum score of 80% OR Certified in 120-, 90-hour Employability NOS (2022), with a minimum score of 80%	NA

## Master Trainer Requirements (Employability Skills 60 hours)

Master Trainer Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
Graduate/CITS	Any discipline			3	Employability Skills curriculum training experience with an interest to train as well as orient other peer trainers	Prospective ES Master trainer should: <ul style="list-style-type: none"> <li>have good communication skills</li> <li>be well versed in English</li> <li>have basic digital skills</li> </ul>
Certified Master Trainer	Qualification Pack: Master Trainer (MEP/Q2602)			3	EEE training of Management SSC (MEPSC) (155 hours)	<ul style="list-style-type: none"> <li>have attention to detail</li> <li>be adaptable</li> <li>have willingness to learn</li> <li>be able to grasp concepts fast and is creative with teaching practices and likes sharing back their learning with others</li> </ul>

Master Trainer Certification	
Domain Certification	Platform Certification
Certified in 60-hour Employability NOS (2022), with a minimum score of <b>90%</b> .  <b>OR</b> Certified in 120-, 90-hour Employability NOS (2022), with a minimum score of <b>90%</b>	NA



## Assessment Strategy

### 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.
- The 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 level 1 to 3 are for the unskilled & semi-skilled individuals, and level 4 and above are for the skilled, supervisor & higher management.
- The assessor must be ToA certified & the trainer must be ToT Certified.
- The 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:

- A surprise visit to the assessment location.
- A random audit of the batch.
- A 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.

## Assessment Strategy (Employability Skills 60 hours)

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.

# References

## Glossary

Term	Description
<b>Declarative Knowledge</b>	Declarative knowledge refers to facts, concepts and principles that need to be known and/or understood in order to accomplish a task or to solve a problem.
<b>Key Learning Outcome</b>	The key learning outcome is the statement of what a learner needs to know, understand and be able to do in order to achieve the terminal outcomes. A set of key learning outcomes will make up the training outcomes. Training outcome is specified in terms of knowledge, understanding (theory) and skills (practical application).
<b>OJT (M)</b>	On-the-job training (Mandatory); trainees are mandated to complete specified hours of training on-site
<b>OJT (R)</b>	On-the-job training (Recommended); trainees are recommended the specified hours of training on-site
<b>Procedural Knowledge</b>	Procedural knowledge addresses how to do something, or how to perform a task. It is the ability to work or produce a tangible work output by applying cognitive, affective or psychomotor skills.
<b>Training Outcome</b>	Training outcome is a statement of what a learner will know, understand and be able to do upon the completion of the training.
<b>Terminal Outcome</b>	The terminal outcome is a statement of what a learner will know, understand and be able to do upon the completion of a module. A set of terminal outcomes help to achieve the training outcome.

## Acronyms and Abbreviations

Term	Description
NOS	National Occupational Standard (s)
NSQF	National Skills Qualifications Framework
OJT	On-the-job Training
QP	Qualifications Pack
PwD	People with Disability
PPE	Personal Protective Equipment
ES	Employability Skills