



Infrastructure Technician - 5G Networks

QP Code: TEL/Q4201

Version: 1.0

NSQF Level: 4

Telecom Sector Skill Council || 3rd Floor, Plot No 126, Sector - 44
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TEL/Q4201: Infrastructure Technician - 5G Networks

Brief Job Description

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.

Personal Attributes

The individual must be physically fit to work for long durations. The person must have an aptitude for details and problem-solving skills with the ability to work in coordination with others. The individual should be able to communicate appropriately, both verbally and in writing.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. [TEL/N4202: Prepare for the Installation of 5G Network Infrastructure](#)
2. [TEL/N4203: Install and Set up Passive Infrastructure Equipment with the 5G Equipment](#)
3. [TEL/N4204: Maintain Passive Infrastructure Equipment](#)
4. [TEL/N9101: Organise Work and Resources as per Health and Safety Standards](#)
5. [TEL/N9102: Interact Effectively with Team Members and Customers](#)

Qualification Pack (QP) Parameters

Sector	Telecom
Sub-Sector	Passive Infrastructure
Occupation	Network (Passive) Installation
Country	India
NSQF Level	4
Aligned to NCO/ISCO/ISIC Code	NCO-2015/NIL

<p>Minimum Educational Qualification & Experience</p>	<p>12th Class OR 10th Class + I.T.I (of 2 years in Electronics/Telecom/IT and other relevant fields) OR Diploma (after Class 10th (2 years in Electronics/Telecom/IT and other relevant fields) OR 10th Class with 2 Years of experience in relevant field OR 8th Class (+ ITI of 2 years in Electronics/Telecom/IT and other relevant fields) with 2 Years of experience in relevant field OR Certificate-NSQF ((L3) Telecom Rigger - 5G and Legacy Networks) with 2 Years of experience in relevant field</p>
<p>Minimum Level of Education for Training in School</p>	
<p>Pre-Requisite License or Training</p>	<p>NA</p>
<p>Minimum Job Entry Age</p>	<p>17 Years</p>
<p>Last Reviewed On</p>	<p>NA</p>
<p>Next Review Date</p>	<p>NA</p>
<p>NSQC Approval Date</p>	
<p>Version</p>	<p>1.0</p>

TEL/N4202: Prepare for the Installation of 5G Network Infrastructure

Description

This OS unit is about making appropriate arrangements for installing the relevant 5G network infrastructure at the identified sites.

Scope

The scope covers the following :

- Conduct the site survey
- Prepare for the installation of 5G network infrastructure

Elements and Performance Criteria

Conduct the site survey

To be competent, the user/individual on the job must be able to:

- PC1.** determine the scope of work, including the identification of the site selected for the installation of 5G network infrastructure
- PC2.** coordinate with the relevant personnel to conduct a site survey to determine if the selected sites meet the applicable requirements for the installation of 5G network infrastructure
- PC3.** check the site for safe access, ensuring no obstructions and presence of any potential dangers, such as electrical and mechanical injury risks
- PC4.** coordinate with the relevant personnel for any modifications required at the surveyed sites

Prepare for the installation of 5G network infrastructure

To be competent, the user/individual on the job must be able to:

- PC5.** ensure the required authorisation is taken for installation at the identified sites and the relevant paperwork is carried out before the installation
- PC6.** arrange the relevant equipment, accessories, tools and equipment required for the installation
- PC7.** conduct the relevant checks to ensure the equipment, accessories, tools and equipment are in working condition, and get the faulty/damaged ones replaced
- PC8.** assemble the required equipment and configure the networking gear for infrastructure installation
- PC9.** coordinate with the relevant personnel for the erection of 5G cell towers as per the requirement
- PC10.** prepare relevant documents regarding the network infrastructure preparation activities

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** prepare the relevant documents regarding the network infrastructure preparation activities
- KU2.** the relevant equipment, accessories, tools and equipment required for the installation of 5G network infrastructure

- KU3.** the importance of checking the equipment, accessories, tools and equipment to ensure they are in working condition
- KU4.** the process of assembling the required equipment and configuring the networking gear for infrastructure installation
- KU5.** the authorization required for the installation of telecom infrastructure at a site and the relevant paperwork to be completed
- KU6.** the appropriate tools and equipment required for the installation of telecom infrastructure
- KU7.** the recommended methods and techniques to be followed for installing, positioning and securing the telecom equipment
- KU8.** the relevant documentation to be carried out regarding the telecom infrastructure installation activities

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** maintain work-related notes and records
- GS2.** read the relevant literature to get the latest updates about the field of work
- GS3.** listen attentively to understand the information/instructions being shared
- GS4.** communicate politely and professionally
- GS5.** plan and prioritise tasks to ensure timely completion
- GS6.** coordinate with the co-workers to achieve the work objectives
- GS7.** evaluate all possible solutions to a problem to select the best one
- GS8.** take quick decisions to deal with workplace emergencies/accidents

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Conduct the site survey</i>	13	20	-	8
PC1. determine the scope of work, including the identification of the site selected for the installation of 5G network infrastructure	3	5	-	2
PC2. coordinate with the relevant personnel to conduct a site survey to determine if the selected sites meet the applicable requirements for the installation of 5G network infrastructure	4	6	-	2
PC3. check the site for safe access, ensuring no obstructions and presence of any potential dangers, such as electrical and mechanical injury risks	3	5	-	2
PC4. coordinate with the relevant personnel for any modifications required at the surveyed sites	3	4	-	2
<i>Prepare for the installation of 5G network infrastructure</i>	17	30	-	12
PC5. ensure the required authorisation is taken for installation at the identified sites and the relevant paperwork is carried out before the installation	3	6	-	2
PC6. arrange the relevant equipment, accessories, tools and equipment required for the installation	3	5	-	2
PC7. conduct the relevant checks to ensure the equipment, accessories, tools and equipment are in working condition, and get the faulty/damaged ones replaced	3	6	-	2
PC8. assemble the required equipment and configure the networking gear for infrastructure installation	2	4	-	2
PC9. coordinate with the relevant personnel for the erection of 5G cell towers as per the requirement	3	4	-	2
PC10. prepare relevant documents regarding the network infrastructure preparation activities	3	5	-	2

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
NOS Total	30	50	-	20

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N4202
NOS Name	Prepare for the Installation of 5G Network Infrastructure
Sector	Telecom
Sub-Sector	Passive Infrastructure
Occupation	Network (Passive) Installation
NSQF Level	4
Credits	TBD
Version	1.0
Next Review Date	NA

TEL/N4203: Install and Set up Passive Infrastructure Equipment with the 5G Equipment

Description

This OS unit is about installing the passive infrastructure equipment and setting them up with the 5G equipment.

Scope

The scope covers the following :

- Install passive infrastructure equipment
- Set up passive infrastructure with 5G equipment

Elements and Performance Criteria

Install passive infrastructure equipment

To be competent, the user/individual on the job must be able to:

- PC1.** select the appropriate passive infrastructure equipment, 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
- PC2.** perform the relevant tests on the passive infrastructure equipment to ensure their proper functioning
- PC3.** 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
- PC4.** carry out charging of the battery to ensure it is able to get charged without any issues
- PC5.** install the SMPS unit following the manufacturer instructions
- PC6.** perform the relevant tests on the SMPS unit to ensure it is able to provide regulated output voltage, as required
- PC7.** install the PIU to protect against wide fluctuations and surges in the mains supply
- PC8.** select an appropriate location/room for the installation of the DG set, ensuring appropriate ventilation, no obstruction of the natural airflow and minimum dust
- PC9.** ensure the DG set room has adequate space to allow good ventilation, ease of operation and serviceability
- PC10.** install the DG set following the manufacturer's instructions
- PC11.** install air cleaner for dusty environments and anti-condensation heaters in the humid/coastal atmosphere
- PC12.** install 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
- PC13.** ensure all the passive infrastructure equipment is installed at the appropriate locations, following the manufacturer's instructions
- PC14.** carry out cabling for the installed equipment, ensuring compatibility with the equipment
- PC15.** set up the connection between various telecom equipment and power source, ensuring a safe and uninterrupted power supply

PC16. perform the relevant tests on the installed equipment to ensure their correct functioning

Set up passive infrastructure with 5G equipment

To be competent, the user/individual on the job must be able to:

- PC17.** install the power supply unit for gNodeB/ eNodeB, ensuring its compatibility with the equipment
- PC18.** install a heat sink to maintain an appropriate temperature in the gNodeB/eNodeB by facilitating the flow of heat away from the equipment
- PC19.** 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
- PC20.** ensure the power supply units have a secure connection with the mains power supply
- PC21.** set up a power connection between the 5G base station and power source, ensuring the recommended power supply for the equipment
- PC22.** use the recommended types of cables for the power supply and ensure adequate protection of the cables from weather conditions and wear and tear
- PC23.** set 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
- PC24.** set up a connection between the emergency power supply equipment and the 5G network and transmission equipment
- PC25.** install shelter(s) and telecom ducts for the protection of passive infrastructure equipment and cabling
- PC26.** set up power connection at the site to provide power supply to various cell tower equipment
- PC27.** use the relevant Personal Protection Equipment (PPE) to ensure protection from electricity
- PC28.** check all the equipment for correct functioning after establishing power connections and carry out troubleshooting for any identified issues
- PC29.** coordinate with the passive infrastructure equipment manufacturer regarding any manufacturing defects

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** 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
- KU2.** the importance of performing the relevant tests on the passive infrastructure equipment before installation to ensure their proper functioning
- KU3.** the process of installing the battery bank, battery charger, and battery stand
- KU4.** the importance of ensuring an adequate number of batteries in the battery bank as per the power requirements
- KU5.** the process of testing the battery to ensure it can get charged without any issues
- KU6.** 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
- KU7.** the process of installing the PIU to protect against wide fluctuations and surges in the mains supply

- KU8.** the importance of ensuring uninterrupted power supply to the 5G network and transmission equipment
- KU9.** the importance of installing the passive infrastructure equipment at the appropriate locations as per the manufacture's instruction
- KU10.** the importance of installing the DG set at an appropriate location/room, ensuring appropriate ventilation, no obstruction of the natural airflow and minimum dust
- KU11.** the importance of ensuring adequate space for good ventilation, ease of operation, and serviceability of the equipment
- KU12.** the process of installing the DG set
- KU13.** the importance and process of installing air cleaner for dusty environments and anti-condensation heaters in the humid/ coastal atmosphere
- KU14.** 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
- KU15.** the process of carrying out cabling for the installed equipment, ensuring compatibility with the equipment
- KU16.** the process of setting up the connection between various telecom equipment and power source, ensuring a safe and uninterrupted power supply
- KU17.** the relevant tests to be performed on the passive infrastructure equipment to ensure their correct functioning
- KU18.** the process of setting up power connection at the site to provide power supply to various cell tower equipment
- KU19.** the process of installing the power supply unit for gNodeB/eNodeB and the importance of ensuring its compatibility with the equipment
- KU20.** 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
- KU21.** the process of connecting the gNodeB/eNodeB with the power supply unit and heat sink using the appropriate types of cables
- KU22.** the importance of ensuring a secure connection between various equipment
- KU23.** the importance of ensuring a secure connection between the power supply units and the mains power supply
- KU24.** the process of setting up a power connection between the 5G base station and power source
- KU25.** the importance of ensuring the recommended power supply for various equipment
- KU26.** 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
- KU27.** the process of setting up the power connection for the 5G base stations, 5G Radio Frequency (RF) transceivers and Remote Radio Unit (RRU)
- KU28.** the process of setting up a connection between the emergency power supply equipment and the 5G network and transmission equipment
- KU29.** the importance and process of installing shelter(s) and telecom ducts for the protection of passive infrastructure equipment and cabling
- KU30.** the use of relevant PPE to ensure protection from electricity
- KU31.** 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

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** maintain work-related notes and records
- GS2.** read the relevant literature to get the latest updates about the field of work
- GS3.** listen attentively to understand the information/ instructions being shared
- GS4.** communicate politely and professionally
- GS5.** plan and prioritise tasks to ensure timely completion
- GS6.** coordinate with the co-workers to achieve the work objectives
- GS7.** evaluate all possible solutions to a problem to select the best one
- GS8.** take quick decisions to deal with workplace emergencies/accidents

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Install passive infrastructure equipment</i>	17	34	-	6
PC1. select the appropriate passive infrastructure equipment, 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	2	3	-	-
PC2. perform the relevant tests on the passive infrastructure equipment to ensure their proper functioning	1	2	-	-
PC3. 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	1	3	-	-
PC4. carry out charging of the battery to ensure it is able to get charged without any issues	1	2	-	-
PC5. install the SMPS unit following the manufacturer instructions	1	2	-	-
PC6. perform the relevant tests on the SMPS unit to ensure it is able to provide regulated output voltage, as required	1	2	-	1
PC7. install the PIU to protect against wide fluctuations and surges in the mains supply	1	2	-	-
PC8. select an appropriate location/room for the installation of the DG set, ensuring appropriate ventilation, no obstruction of the natural airflow and minimum dust	1	2	-	1
PC9. ensure the DG set room has adequate space to allow good ventilation, ease of operation and serviceability	1	2	-	-
PC10. install the DG set following the manufacturer's instructions	1	2	-	1
PC11. install air cleaner for dusty environments and anti-condensation heaters in the humid/ coastal atmosphere	1	2	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. install 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	1	2	-	1
PC13. ensure all the passive infrastructure equipment is installed at the appropriate locations, following the manufacturer's instructions	1	2	-	-
PC14. carry out cabling for the installed equipment, ensuring compatibility with the equipment	1	2	-	1
PC15. set up the connection between various telecom equipment and power source, ensuring a safe and uninterrupted power supply	1	2	-	-
PC16. perform the relevant tests on the installed equipment to ensure their correct functioning	1	2	-	1
<i>Set up passive infrastructure with 5G equipment</i>	13	26	-	4
PC17. install the power supply unit for gNodeB/eNodeB, ensuring its compatibility with the equipment	1	2	-	-
PC18. install a heat sink to maintain an appropriate temperature in the gNodeB/eNodeB by facilitating the flow of heat away from the equipment	1	2	-	-
PC19. 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	1	2	-	1
PC20. ensure the power supply units have a secure connection with the mains power supply	1	2	-	-
PC21. set up a power connection between the 5G base station and power source, ensuring the recommended power supply for the equipment	1	2	-	1
PC22. use the recommended types of cables for the power supply and ensure adequate protection of the cables from weather conditions and wear and tear	1	2	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC23. set 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	1	2	-	-
PC24. set up a connection between the emergency power supply equipment and the 5G network and transmission equipment	1	2	-	1
PC25. install shelter(s) and telecom ducts for the protection of passive infrastructure equipment and cabling	1	2	-	-
PC26. set up power connection at the site to provide power supply to various cell tower equipment	1	2	-	1
PC27. use the relevant Personal Protection Equipment (PPE) to ensure protection from electricity	1	2	-	-
PC28. check all the equipment for correct functioning after establishing power connections and carry out troubleshooting for any identified issues	1	2	-	-
PC29. coordinate with the passive infrastructure equipment manufacturer regarding any manufacturing defects	1	2	-	-
NOS Total	30	60	-	10

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N4203
NOS Name	Install and Set up Passive Infrastructure Equipment with the 5G Equipment
Sector	Telecom
Sub-Sector	Passive Infrastructure
Occupation	Network (Passive) Installation
NSQF Level	4
Credits	TBD
Version	1.0
Next Review Date	NA

TEL/N4204: Maintain Passive Infrastructure Equipment

Description

This OS unit is about maintaining the passive infrastructure equipment at 5G network infrastructure sites.

Scope

The scope covers the following :

- Maintain passive infrastructure equipment
- Document and review the maintenance record

Elements and Performance Criteria

Maintain passive infrastructure equipment

To be competent, the user/individual on the job must be able to:

- PC1.** check the passive infrastructure equipment, such as battery bank, SMPS, PIU, DG set, and Climate Control Units, regularly to ensure their correct functioning
- PC2.** carry out preventive maintenance of the passive infrastructure equipment as per the recommended schedule
- PC3.** check the batteries in the battery bank to ensure they are correctly positioned
- PC4.** check the equipment cables to ensure they are intact, and replace the faulty/ damaged cables
- PC5.** test the batteries to ensure they can hold the charge, and carry out appropriate troubleshooting as required
- PC6.** check the SMPS to ensure it is able to control power at high frequencies and can provide a stable and efficient power supply to telecom equipment
- PC7.** carry out troubleshooting for any issues identified with the SMPS
- PC8.** perform the relevant tests on the PIU to ensure it is able to handle fluctuations and surges in the mains supply appropriately
- PC9.** carry out appropriate troubleshooting for the issues identified with the PIU
- PC10.** check the DG set for low oil pressure and level, high water temperature, overload, start failure, short circuit, phase loss, high voltage, voltage loss, etc.
- PC11.** carry out appropriate troubleshooting as per the manufacturer's instructions to resolve the issues identified with the DG set
- PC12.** check the climate control units to ensure they are functioning appropriately to protect the telecom equipment from heat damage and moisture
- PC13.** ensuring to use the manufacturer-recommended spare parts and maintenance tools during the maintenance of the passive infrastructure equipment
- PC14.** install new passive infrastructure equipment to replace the damaged or irreparable equipment

Document and review the maintenance records

To be competent, the user/individual on the job must be able to:

- PC15.** maintain the record of maintenance activities

- PC16.** review the maintenance records to identify any recurring issues and find appropriate solutions for them

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the importance of checking the passive infrastructure equipment regularly to ensure their correct functioning
- KU2.** the process and importance of carrying out preventive maintenance of various passive infrastructure equipment as per the recommended schedule
- KU3.** the importance of ensuring batteries are correctly positioned in the battery bank
- KU4.** the importance of checking the equipment cables to ensure they are intact
- KU5.** the importance of testing the batteries to ensure they can hold the charge and the appropriate troubleshooting to be carried out
- KU6.** 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
- KU7.** 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
- KU8.** 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 voltage, voltage loss, low frequency, low battery voltage, high battery voltage, low oil level, etc.
- KU9.** the appropriate troubleshooting to be carried out to resolve the issues identified with the DG set
- KU10.** 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
- KU11.** the importance of using use the manufacturer-recommended spare parts and maintenance tools during the equipment maintenance
- KU12.** the importance and process of installing new passive infrastructure equipment to replace the damaged or irreparable equipment
- KU13.** the importance of maintaining and reviewing the maintenance records to identify and resolve recurring issues

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** maintain work-related notes and records
- GS2.** read the relevant literature to get the latest updates about the field of work
- GS3.** listen attentively to understand the information/ instructions being shared
- GS4.** communicate politely and professionally
- GS5.** plan and prioritise tasks to ensure timely completion
- GS6.** coordinate with the co-workers to achieve the work objectives

GS7. evaluate all possible solutions to a problem to select the best one

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Maintain passive infrastructure equipment</i>	23	52	-	14
PC1. check the passive infrastructure equipment, such as battery bank, SMPS, PIU, DG set, and Climate Control Units, regularly to ensure their correct functioning	2	4	-	1
PC2. carry out preventive maintenance of the passive infrastructure equipment as per the recommended schedule	2	4	-	1
PC3. check the batteries in the battery bank to ensure they are correctly positioned	2	4	-	1
PC4. check the equipment cables to ensure they are intact, and replace the faulty/ damaged cables	2	4	-	1
PC5. test the batteries to ensure they can hold the charge, and carry out appropriate troubleshooting as required	2	4	-	1
PC6. check the SMPS to ensure it is able to control power at high frequencies and can provide a stable and efficient power supply to telecom equipment	2	4	-	1
PC7. carry out troubleshooting for any issues identified with the SMPS	1	4	-	1
PC8. perform the relevant tests on the PIU to ensure it is able to handle fluctuations and surges in the mains supply appropriately	2	4	-	1
PC9. carry out appropriate troubleshooting for the issues identified with the PIU	1	3	-	1
PC10. check the DG set for low oil pressure and level, high water temperature, overload, start failure, short circuit, phase loss, high voltage, voltage loss, etc.	2	4	-	1
PC11. carry out appropriate troubleshooting as per the manufacturer's instructions to resolve the issues identified with the DG set	1	4	-	1
PC12. check the climate control units to ensure they are functioning appropriately to protect the telecom equipment from heat damage and moisture	2	2	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. ensuring to use the manufacturer-recommended spare parts and maintenance tools during the maintenance of the passive infrastructure equipment	1	3	-	1
PC14. install new passive infrastructure equipment to replace the damaged or irreparable equipment	1	4	-	1
<i>Document and review the maintenance records</i>	2	8	-	1
PC15. maintain the record of maintenance activities	1	4	-	-
PC16. review the maintenance records to identify any recurring issues and find appropriate solutions for them	1	4	-	1
NOS Total	25	60	-	15

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N4204
NOS Name	Maintain Passive Infrastructure Equipment
Sector	Telecom
Sub-Sector	Passive Infrastructure
Occupation	Network (Passive) Installation
NSQF Level	4
Credits	TBD
Version	1.0
Next Review Date	NA

TEL/N9101: Organise Work and Resources as per Health and Safety Standards

Description

This OS unit is about planning work and following sustainable as well as healthy practices for safety and optimal use of resources.

Scope

The scope covers the following :

- Perform work as per quality standards
- Maintain safe, healthy and secure working environment
- Conserve material/energy/electricity
- Use effective waste management/recycling practices

Elements and Performance Criteria

Perform work as per quality standards

To be competent, the user/individual on the job must be able to:

- PC1.** keep workspace clean and tidy
- PC2.** perform individual role and responsibilities as per the job role while taking accountability for the work
- PC3.** record/document tasks completed as per the requirements within specific timelines
- PC4.** implement schedules to ensure timely completion of tasks
- PC5.** identify the cause of a problem related to own work and validate it
- PC6.** analyse problems accurately and communicate different possible solutions to the problem

Maintain safe, healthy and secure working environment

To be competent, the user/individual on the job must be able to:

- PC7.** comply with organisation's current health, safety, security policies and procedures
- PC8.** check for water spills in and around the work space and escalate these to the appropriate authority
- PC9.** report any identified breaches in health, safety, and security policies and procedures to the designated person
- PC10.** use safety materials such as goggles, gloves, ear plugs, caps, ESD pins, covers, shoes, etc.
- PC11.** avoid damage of components due to negligence in ESD procedures or any other loss due to safety negligence
- PC12.** identify hazards such as illness, accidents, fires or any other natural calamity safely, as per organisation's emergency procedures, within the limits of individual's authority
- PC13.** participate regularly in fire drills or other safety related workshops organised by the company
- PC14.** report any hazard outside the individual's authority to the relevant person in line with organisational procedures and warn others who may be affected
- PC15.** maintain appropriate posture while sitting/standing for long hours

- PC16.** handle heavy and hazardous materials with care, while maintaining appropriate posture
- PC17.** sanitize workstation and equipment regularly
- PC18.** clean hands with soap, alcohol-based sanitizer regularly
- PC19.** avoid contact with anyone suffering from communicable diseases and take necessary precautions
- PC20.** take safety precautions while travelling e.g. maintain 1m distance from others, sanitize hands regularly, wear masks, etc.
- PC21.** report hygiene and sanitation issues to appropriate authority
- PC22.** follow recommended personal hygiene and sanitation practices, for example, washing/sanitizing hands, covering face with a bent elbow while coughing/sneezing, using PPE, etc.

Conserve material/energy/electricity

To be competent, the user/individual on the job must be able to:

- PC23.** optimize usage of material including water in various tasks/activities/processes
- PC24.** use resources such as water, electricity and others responsibly
- PC25.** carry out routine cleaning of tools, machine and equipment
- PC26.** optimize use of electricity/energy in various tasks/activities/processes
- PC27.** perform periodic checks of the functioning of the equipment/machine and rectify wherever required
- PC28.** report malfunctioning and lapses in maintenance of equipment
- PC29.** use electrical equipment and appliances properly

Use effective waste management/recycling practices

To be competent, the user/individual on the job must be able to:

- PC30.** identify recyclable, non-recyclable and hazardous waste
- PC31.** deposit recyclable and reusable material at identified location
- PC32.** dispose non-recyclable and hazardous waste as per recommended processes

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** 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 an advancement in their skills
- KU2.** key performance indicators for the new tasks
- KU3.** feedback processes and formats
- KU4.** timelines and goals as well as their relevance to work allocated
- KU5.** importance of quality and timely delivery of the product/service
- KU6.** escalation matrix and its importance, especially in case of emergencies
- KU7.** ways of time and cost management
- KU8.** rules/regulation for maintaining health and safety at workplace
- KU9.** meaning of hazard, different types of health and safety hazards found in the workplace, risks and threats based on the nature of work

- KU10.** relevant signage, warnings, labels or descriptions on equipment, etc. while carrying out work activities
- KU11.** procedures to report breaches in health, safety and security
- KU12.** organisation's procedures for different emergency situations and the importance of following the same
- KU13.** different methods of cleaning, disinfection, sterilization, and sanitization
- KU14.** significance of personal hygiene practice including hand hygiene
- KU15.** path of disease transmission
- KU16.** correct method of donning and doffing of PPE
- KU17.** ways of managing resources and material efficiently
- KU18.** common electrical problems and common practices of conserving electricity
- KU19.** categorization of waste into dry, wet, recyclable, non-recyclable and items of single-use plastics and use of different colours of dustbins
- KU20.** organisation's procedures for minimizing waste
- KU21.** waste management and methods of waste disposal
- KU22.** common sources of pollution and ways to minimize it

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** improve and modify work practices
- GS2.** complete tasks efficiently and accurately within stipulated time
- GS3.** develop skills and mastery of the technologies prevalent in the industry
- GS4.** write in at least one language and complete written work with attention to detail
- GS5.** utilize time and manage workload efficiently
- GS6.** read and comprehend instructions and documents
- GS7.** accept feedback in a constructive way
- GS8.** seek clarifications from superior about the job requirement
- GS9.** read and comprehend statutory documents relevant to safety and hygiene
- GS10.** refer all anomalies to the concerned persons
- GS11.** analyze situations and make appropriate decisions
- GS12.** decide the most suitable course of action for completing the task within resources

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Perform work as per quality standards</i>	4	9	-	2
PC1. keep workspace clean and tidy	-	1	-	-
PC2. perform individual role and responsibilities as per the job role while taking accountability for the work	1	1	-	1
PC3. record/document tasks completed as per the requirements within specific timelines	-	1	-	1
PC4. implement schedules to ensure timely completion of tasks	-	2	-	-
PC5. identify the cause of a problem related to own work and validate it	2	2	-	-
PC6. analyse problems accurately and communicate different possible solutions to the problem	1	2	-	-
<i>Maintain safe, healthy and secure working environment</i>	16	27	-	4
PC7. comply with organisation's current health, safety, security policies and procedures	1	1	-	-
PC8. check for water spills in and around the work space and escalate these to the appropriate authority	1	2	-	1
PC9. report any identified breaches in health, safety, and security policies and procedures to the designated person	1	2	-	1
PC10. use safety materials such as goggles, gloves, ear plugs, caps, ESD pins, covers, shoes, etc.	1	2	-	1
PC11. avoid damage of components due to negligence in ESD procedures or any other loss due to safety negligence	2	3	-	1
PC12. identify hazards such as illness, accidents, fires or any other natural calamity safely, as per organisation's emergency procedures, within the limits of individual's authority	2	1	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. participate regularly in fire drills or other safety related workshops organised by the company	1	3	-	-
PC14. report any hazard outside the individual's authority to the relevant person in line with organisational procedures and warn others who may be affected	1	3	-	-
PC15. maintain appropriate posture while sitting/standing for long hours	1	1	-	-
PC16. handle heavy and hazardous materials with care, while maintaining appropriate posture	1	1	-	-
PC17. sanitize workstation and equipment regularly	1	2	-	-
PC18. clean hands with soap, alcohol-based sanitizer regularly	-	1	-	-
PC19. avoid contact with anyone suffering from communicable diseases and take necessary precautions	-	1	-	-
PC20. take safety precautions while travelling e.g. maintain 1m distance from others, sanitize hands regularly, wear masks, etc.	1	2	-	-
PC21. report hygiene and sanitation issues to appropriate authority	1	1	-	-
PC22. follow recommended personal hygiene and sanitation practices, for example, washing/sanitizing hands, covering face with a bent elbow while coughing/sneezing, using PPE, etc.	1	1	-	-
<i>Conserve material/energy/electricity</i>	7	16	-	3
PC23. optimize usage of material including water in various tasks/activities/processes	1	2	-	-
PC24. use resources such as water, electricity and others responsibly	1	2	-	1
PC25. carry out routine cleaning of tools, machine and equipment	1	2	-	-
PC26. optimize use of electricity/energy in various tasks/activities/processes	1	3	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC27. perform periodic checks of the functioning of the equipment/machine and rectify wherever required	1	3	-	1
PC28. report malfunctioning and lapses in maintenance of equipment	1	2	-	-
PC29. use electrical equipment and appliances properly	1	2	-	-
<i>Use effective waste management/recycling practices</i>	3	8	-	1
PC30. identify recyclable, non-recyclable and hazardous waste	1	2	-	1
PC31. deposit recyclable and reusable material at identified location	1	3	-	-
PC32. dispose non-recyclable and hazardous waste as per recommended processes	1	3	-	-
NOS Total	30	60	-	10

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N9101
NOS Name	Organise Work and Resources as per Health and Safety Standards
Sector	Telecom
Sub-Sector	Generic
Occupation	Generic
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	24/02/2022
Next Review Date	24/02/2026
NSQC Clearance Date	24/02/2022

TEL/N9102: Interact Effectively with Team Members and Customers

Description

This OS unit is about interacting with superiors and colleagues as well as customers and other stakeholders in own or other work groups within as well as outside the organisation.

Scope

The scope covers the following :

- Interact effectively with superiors
- Interact effectively with colleagues and customers
- Respect differences of gender and ability

Elements and Performance Criteria

Interact effectively with superiors

To be competent, the user/individual on the job must be able to:

- PC1.** receive work requirements from superiors and customers and interpret them correctly
- PC2.** inform the supervisor and/or concerned person about any unforeseen disruptions or delays
- PC3.** participate in decision making by providing facts and figures, giving/accepting constructive suggestions
- PC4.** rectify errors as per feedback and ensure the errors are not repeated

Interact effectively with colleagues and customers

To be competent, the user/individual on the job must be able to:

- PC5.** comply with organisation's policies and procedures for working with team members
- PC6.** communicate professionally using appropriate mode of communication such as face-to-face, telephonic and written
- PC7.** respond to queries and seek/provide clarifications if required
- PC8.** co-ordinate with team to integrate work as per requirements
- PC9.** resolve conflicts within the team/with customers to achieve smooth workflow
- PC10.** recognize emotions accurately in self and others to build good relationships
- PC11.** prioritize team and organization goals above personal goals

Respect differences of gender and ability

To be competent, the user/individual on the job must be able to:

- PC12.** maintain a conducive environment for all the genders at the workplace
- PC13.** encourage appropriate behavior and conduct with people across gender
- PC14.** assist team members with disability in overcoming any challenges faced in work
- PC15.** practice appropriate verbal and non-verbal communication while interacting with People with Disability (PwD)
- PC16.** ensure equal participation of the people across genders in discussions

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** organisation's policies on dress code, workplace timings, workplace behaviour, performance management, incentives, delivery standards, information security, etc.
- KU2.** organisation's hierarchy and escalation matrix
- KU3.** importance of establishing good working relationships with colleagues and superiors
- KU4.** importance of helping colleagues with problems, in order to meet quality and time standards as a team
- KU5.** different means and methods of communication
- KU6.** different types of information that colleagues might need and the importance of providing this information in an appropriate manner
- KU7.** organisation's policies and procedures for working with colleagues and superiors
- KU8.** importance of understanding consequences of gender biased behaviour
- KU9.** gender based concepts, issues and legislation
- KU10.** organisation standards and guidelines to be followed for PwD and knowledge about laws, acts and provisions defined for PwD by the statutory bodies and the right way to use them including various medical conditions associated with PwD
- KU11.** health and safety requirements at workplace for PwD
- KU12.** process of recruiting people for a particular job profile w.r.t PwD and gender
- KU13.** 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

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** read and comprehend forms, documents and records
- GS2.** read and write in English and/or local language
- GS3.** complete work with attention to detail
- GS4.** listen effectively and orally communicate information
- GS5.** work as per customer requirements
- GS6.** communicate with empathy across genders and PwD
- GS7.** improve and modify work practices
- GS8.** maintain positive and effective relationships with colleagues and customers
- GS9.** evaluate the possible solution(s) to the problem

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Interact effectively with superiors</i>	7	15	-	2
PC1. receive work requirements from superiors and customers and interpret them correctly	1	2	-	-
PC2. inform the supervisor and/or concerned person about any unforeseen disruptions or delays	2	4	-	1
PC3. participate in decision making by providing facts and figures, giving/accepting constructive suggestions	2	5	-	1
PC4. rectify errors as per feedback and ensure the errors are not repeated	2	4	-	-
<i>Interact effectively with colleagues and customers</i>	7	26	-	4
PC5. comply with organisation's policies and procedures for working with team members	1	2	-	-
PC6. communicate professionally using appropriate mode of communication such as face-to-face, telephonic and written	2	4	-	1
PC7. respond to queries and seek/provide clarifications if required	2	4	-	1
PC8. co-ordinate with team to integrate work as per requirements	-	3	-	-
PC9. resolve conflicts within the team/with customers to achieve smooth workflow	1	5	-	1
PC10. recognize emotions accurately in self and others to build good relationships	1	4	-	-
PC11. prioritize team and organization goals above personal goals	-	4	-	1
<i>Respect differences of gender and ability</i>	11	24	-	4
PC12. maintain a conducive environment for all the genders at the workplace	2	5	-	1
PC13. encourage appropriate behavior and conduct with people across gender	2	5	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. assist team members with disability in overcoming any challenges faced in work	3	4	-	1
PC15. practice appropriate verbal and non-verbal communication while interacting with People with Disability (PwD)	2	4	-	1
PC16. ensure equal participation of the people across genders in discussions	2	6	-	-
NOS Total	25	65	-	10

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N9102
NOS Name	Interact Effectively with Team Members and Customers
Sector	Telecom
Sub-Sector	Generic
Occupation	Generic
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	24/02/2022
Next Review Date	24/02/2026
NSQC Clearance Date	24/02/2022

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Element/ Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each Element/ PC.
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
4. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).
5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training center based on these criteria.
6. To pass the Qualification Pack assessment, every trainee should score the Recommended Pass % aggregate for the QP.
7. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

Minimum Aggregate Passing % at QP Level : 70

(Please note: Every Trainee should score a minimum aggregate passing percentage as specified above, to successfully clear the Qualification Pack assessment.)

Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
TEL/N4202.Prepare for the Installation of 5G Network Infrastructure	30	50	-	20	100	20
TEL/N4203.Install and Set up Passive Infrastructure Equipment with the 5G Equipment	30	60	-	10	100	20
TEL/N4204.Maintain Passive Infrastructure Equipment	25	60	-	15	100	20
TEL/N9101.Organise Work and Resources as per Health and Safety Standards	30	60	-	10	100	20
TEL/N9102.Interact Effectively with Team Members and Customers	25	65	-	10	100	20
Total	140	295	-	65	500	100

Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training

Glossary

Sector	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
Occupational Standards (OS)	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria (PC)	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
National Occupational Standards (NOS)	NOS are occupational standards which apply uniquely in the Indian context.
Qualifications Pack (QP)	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
Unit Code	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
Unit Title	Unit title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
Scope	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.
Knowledge and Understanding (KU)	Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.

Organisational Context	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills/ Generic Skills (GS)	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
Electives	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
Options	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.