सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP

Qualification Pack

Transforming the skill landscape

Telecom Infrastructure Engineer

QP Code: TEL/Q6100

Version: 2.0

NSQF Level: 5

Telecom Sector Skill Council || 3rd Floor, Plot No 126, Sector - 44
Gurgaon - 122003

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TEL/Q6100: Telecom Infrastructure Engineer

Brief Job Description

An Infrastructure Engineer in the telecom industry is responsible for ensuring site uptime by supervising and monitoring preventive and corrective maintenance of Passive Infrastructure at sites. They also coordinate infrastructure up-gradation activities and ensure timely payments of rent, diesel, and electricity charges after validating the vendor bills.

Personal Attributes

This job requires the individual to work closely with multiple teams and third-party vendors. They should be willing to work in the field and handle high pressure situations. They should be adaptable to changing work environments and possess good practical knowledge so that they can successfully perform the assigned responsibilities.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. TEL/N6100: Perform Preventive and Corrective Maintenance of Passive Infrastructure Equipment
2. TEL/N6102: Upgrade Passive Infrastructure at Radio Locations
3. TEL/N6103: Perform other Operational Activities at Radio Sites
4. TEL/N9103: Implement Effective Interaction at workplace
5. TEL/N9104: Manage Work, Resources and Safety at workplace

Qualification Pack (QP) Parameters

Sector	Telecom
Sub-Sector	Passive Infrastructure
Occupation	Operations and Maintenance - Passive Infrastructure
Country	India
NSQF Level	5
Aligned to NCO/ISCO/ISIC Code	NCO-2015/7422.0204

Minimum Educational Qualification & Experience	B.E./B.Tech (Science/Electronics/Telecom/IT and other relevant fields) OR Certificate-NSQF (L4) Infrastructure Technician) with 2 Years of experience Passive Infrastructure
Minimum Level of Education for Training in School	
Pre-Requisite License or Training	NA
Minimum Job Entry Age	21 Years
Last Reviewed On	30/12/2021
Next Review Date	30/12/2025
NSQC Approval Date	30/12/2021
Version	2.0
Reference code on NQR	2021/TEL/TSSC/04907
NQR Version	1.0

TEL/N6100: Perform Preventive and Corrective Maintenance of Passive Infrastructure Equipment

Description

This OS unit is about carrying out preventive and corrective maintenance activities for passive equipment such as DG sets, battery bank, SMPS etc. to ensure their optimal working.

Scope

The scope covers the following :

- Prepare for preventive and corrective maintenance
- Supervise preventive and corrective maintenance activities
- Report and document the status of site infrastructure

Elements and Performance Criteria

Prepare for preventive and corrective maintenance

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

PC1. maintain site details including site listing, Diesel Generator (DG) and power capacity, equipment types and vendors

PC2. collect preventive maintenance schedule and the corresponding checklist from the supervisor

PC3. analyse the schedule to account for any site criticality, capacity, and frequency faults, if required

PC4. notify Network Operation Centre (NOC) team well in advance before commencing maintenance activities

PC5. assess network alarm severity, Service Level Agreement (SLAs) and affected network elements

PC6. provide information to all relevant parties/stakeholders for identifying the problem and its root cause

PC7. prioritize action on alarms based on faults service impact analysis

PC8. ensure the team has all necessary tools, test equipment, resources and spare hardware equipment to perform maintenance

PC9. raise requests to the vendors for procurement of spares, in case the same are not available in the store, as per company process

PC10. arrange for sending parts/components to logistics team for repair and replacement

Supervise preventive and corrective maintenance activities

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

PC11. review daily and weekly maintenance activities performed by the technicians

PC12. monitor completion of standard maintenance activities, such as checking battery, voltage levels, DG set fuel/oil refill etc.

PC13. supervise maintenance and testing activities such as equipment grouting, earthing connections, adequacy of wiring etc.

PC14. ensure site up-keep by checking for leakages, oil/diesel spillages, condition of cable trays and upkeep of tower (through riggers) etc.

PC15. record readings from Power Interface Unit (PIU) panels on input and output voltage and current levels

PC16. review third party elements that require maintenance for timely generation of tickets to the respective vendors by Network Operation Center (NOC) team, if required

PC17. perform initial diagnostic tests to identify the root cause of the alarm within defined Service Level Agreement (SLA)

PC18. analyse the options to rectify the fault and confirm with supervisors, if required

PC19. resolve faults pertaining to Auto Main Failure (AMF) panel, alarm panel, Miniature Circuit Breaker (MCB), battery bank, DG set etc.

PC20. notify concerned parties about unresolved faults/instances of delays in resolution, as per organisation policy

PC21. ensure timely completion of work by monitoring activities performed by riggers and other technicians

Report and document the status of site infrastructure

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

PC22. report emergency incidents like passive equipment failures, fire and power failures etc. to the management

PC23. ensure completion of administrative jobs like site clearance, return of test equipment etc.

PC24. confirm effectiveness of the maintenance process by monitoring site's alarm status in coordination with the NOC team

PC25. notify all relevant parties, including Field Maintenance (FM) Engineer, NOC team, supervisors, of the results of the maintenance to obtain sign-off

PC26. update relevant documents to be made available for inspection/audit

PC27. complete routine maintenance logs, activity logs and spare tracker within stipulated timeline

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. power capacities of DG set, battery bank and Switch Mode Power Supply (SMPS) based on their models

KU2. standard preventive maintenance activities carried on site

KU3. formats of schedules and checklists

KU4. typical faults on site

KU5. alarm types, indicators and resolution SLAs/ timelines

KU6. alarm criticalities and prioritization

KU7. functionality of tools like pliers, power drill, screwdrivers, spanner

KU8. inventory management and repair/return process for faulty equipment

KU9. process for repair/replacement of parts

KU10. risk and impact of deviating from defined procedures/work instructions

KU11. functionality of passive infrastructure equipment such as DG set, PIU panel, transformer, SMPS, Air Conditioner, battery bank etc.
KU12. measurement tools, like multi-meter and thermometer, used to measure voltage levels of battery and site temperatures
KU13. need and requirement of earthing the equipment
KU14. mechanism for maintaining the earthing pit to absolute zero
KU15. electrical wiring requirements at site and their labelling/colour coding
KU16. phase and level of power received from the electrical board
KU17. site power requirements based on equipment rating
KU18. various diagnostic tools
KU19. implications for non response to tickets within defined SLAs
KU20. escalation matrix for reporting identified incidents, emergencies e.g. system failures, fire and power failures etc.
KU21. standard fault-finding (troubleshooting) techniques
KU22. process for obtaining sign-off post completion of the maintenance activities
KU23. types of documentation in organization and importance of the same
KU24. records to be maintained and implications of non-maintenance of the same

Generic Skills (GS)

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

GS1. research various sources for information
GS2. read and write various documents as per given formats
GS3. interact timely with stakeholders
GS4. liaise and coordinate with third party vendors
GS5. interpret technical data and reports
GS6. multi-task various activities
GS7. prioritize and execute tasks in a high pressure environment
GS8. share knowledge/information timely with other team members and colleagues
GS9. take initiatives and progressively assume increased responsibilities

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Prepare for preventive and corrective maintenance	**12**	**23**	**-**	**5**
PC1. maintain site details including site listing, Diesel Generator (DG) and power capacity, equipment types and vendors	1	3	-	1
PC2. collect preventive maintenance schedule and the corresponding checklist from the supervisor	1	2	-	-
PC3. analyse the schedule to account for any site criticality, capacity, and frequency faults, if required	2	1	-	-
PC4. notify Network Operation Centre (NOC) team well in advance before commencing maintenance activities	1	2	-	-
PC5. assess network alarm severity, Service Level Agreement (SLAs) and affected network elements	1	3	-	1
PC6. provide information to all relevant parties/stakeholders for identifying the problem and its root cause	1	2	-	-
PC7. prioritize action on alarms based on faults service impact analysis	1	2	-	-
PC8. ensure the team has all necessary tools, test equipment, resources and spare hardware equipment to perform maintenance	1	2	-	1
PC9. raise requests to the vendors for procurement of spares, in case the same are not available in the store, as per company process	1	4	-	1
PC10. arrange for sending parts/components to logistics team for repair and replacement	2	2	-	1
Supervise preventive and corrective maintenance activities	**13**	**26**	**-**	**2**
PC11. review daily and weekly maintenance activities performed by the technicians	1	1	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. monitor completion of standard maintenance activities, such as checking battery, voltage levels, DG set fuel/oil refill etc.	1	3	-	-
PC13. supervise maintenance and testing activities such as equipment grouting, earthing connections, adequacy of wiring etc.	1	2	-	1
PC14. ensure site up-keep by checking for leakages, oil/diesel spillages, condition of cable trays and upkeep of tower (through riggers) etc.	1	3	-	-
PC15. record readings from Power Interface Unit (PIU) panels on input and output voltage and current levels	1	3	-	-
PC16. review third party elements that require maintenance for timely generation of tickets to the respective vendors by Network Operation Center (NOC) team, if required	1	4	-	1
PC17. perform initial diagnostic tests to identify the root cause of the alarm within defined Service Level Agreement (SLA)	1	2	-	-
PC18. analyse the options to rectify the fault and confirm with supervisors, if required	2	1	-	-
PC19. resolve faults pertaining to Auto Main Failure (AMF) panel, alarm panel, Miniature Circuit Breaker (MCB), battery bank, DG set etc.	1	2	-	-
PC20. notify concerned parties about unresolved faults/instances of delays in resolution, as per organisation policy	1	3	-	-
PC21. ensure timely completion of work by monitoring activities performed by riggers and other technicians	2	2	-	-
Report and document the status of site infrastructure	**10**	**6**	**-**	**3**
PC22. report emergency incidents like passive equipment failures, fire and power failures etc. to the management	2	1	-	-
PC23. ensure completion of administrative jobs like site clearance, return of test equipment etc.	2	1	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC24. confirm effectiveness of the maintenance process by monitoring site's alarm status in coordination with the NOC team	1	1	-	-
PC25. notify all relevant parties, including Field Maintenance (FM) Engineer, NOC team, supervisors, of the results of the maintenance to obtain sign-off	2	1	-	1
PC26. update relevant documents to be made available for inspection/audit	2	1	-	-
PC27. complete routine maintenance logs, activity logs and spare tracker within stipulated timeline	1	1	-	1
NOS Total	**35**	**55**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N6100
NOS Name	Perform Preventive and Corrective Maintenance of Passive Infrastructure Equipment
Sector	Telecom
Sub-Sector	Network Managed Services
Occupation	Operations and Maintenance - Passive Infrastructure
NSQF Level	5
Credits	TBD
Version	2.0
Last Reviewed Date	30/12/2021
Next Review Date	30/12/2025
NSQC Clearance Date	30/12/2021

TEL/N6102: Upgrade Passive Infrastructure at Radio Locations

Description

This OS unit is about carrying out upgrade activities for passive infrastructure such as enhanced capacity DG set, battery banks, Air Conditioner (AC), power plant etc. at radio locations.

Scope

The scope covers the following :

- Assess up gradation of infrastructure
- Coordinate upgrade activity
- Report and document the status

Elements and Performance Criteria

Assess up gradation of infrastructure

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

PC1. analyse change requests received from relevant teams (project team/supervisors)

PC2. identify activity type to be performed such as hardware upgrade, change of PIU, panels etc.

PC3. analyse criticality and timelines for carrying out the changes

PC4. prepare a work plan and identify dependencies, if any

PC5. assess the potential impact of the proposed activity and plan for possible outage condition or deferral of the activity

PC6. inform the Network Operation Centre (NOC) prior to undertaking the upgradation activity

Co-ordinate upgrade activity

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

PC7. coordinate with the vendors/technicians/riggers to ensure that changes are carried as per the change request

PC8. ensure change is realized without disruption to the network

PC9. monitor continuously and implement contingency plan in case of service disruption

PC10. return decommissioned equipment to the warehouse in case of power capacity upgradation

PC11. comply with the defined SLA for carrying out changes

Report and document the status

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

PC12. ensure completion of administrative jobs like site clearance, return of test equipment etc

PC13. confirm effectiveness of the maintenance process, by monitoring site alarm status in coordination with the NOC team

PC14. notify all relevant parties about the results of the maintenance result to obtain the sign-off from relevant personnel

PC15. identify documents to be updated and to be made available for inspection

PC16. complete routine maintenance logs, activity logs and spare tracker within stipulated timeline

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. power capacities of DG set, battery bank and SMPS based on their models
KU2. functionality of Passive infrastructure equipment like DG set, PIU panel, transformer, SMPS, air conditioner, battery bank
KU3. operate passive infrastructure equipment like DG set, PIU panel, transformer, SMPS, air conditioner, battery bank
KU4. standard upgradation activities that need to be carried out
KU5. knowledge of spare management and repair and return process for faulty equipment
KU6. risk and impact of not following defined procedures/work instructions
KU7. standard fault-finding (troubleshooting) techniques
KU8. process for obtaining sign-off post completion of the maintenance activities
KU9. types of documentation in organization and importance of the same
KU10. records to be maintained and implications of non-maintenance of the same

Generic Skills (GS)

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

GS1. communicate with supervisor
GS2. communicate in the local language (preferable)
GS3. liaise and coordinate with third party vendors

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Assess up gradation of infrastructure	**16**	**23**	**-**	**3**
PC1. analyse change requests received from relevant teams (project team/supervisors)	2	3	-	1
PC2. identify activity type to be performed such as hardware upgrade, change of PIU, panels etc.	2	4	-	-
PC3. analyse criticality and timelines for carrying out the changes	3	4	-	1
PC4. prepare a work plan and identify dependencies, if any	3	4	-	-
PC5. assess the potential impact of the proposed activity and plan for possible outage condition or deferral of the activity	3	4	-	1
PC6. inform the Network Operation Centre (NOC) prior to undertaking the upgradation activity	3	4	-	-
Co-ordinate upgrade activity	**12**	**16**	**-**	**4**
PC7. coordinate with the vendors/technicians/riggers to ensure that changes are carried as per the change request	2	3	-	-
PC8. ensure change is realized without disruption to the network	1	3	-	1
PC9. monitor continuously and implement contingency plan in case of service disruption	3	2	-	1
PC10. return decommissioned equipment to the warehouse in case of power capacity upgradation	3	4	-	1
PC11. comply with the defined SLA for carrying out changes	3	4	-	1
Report and document the status	**7**	**16**	**-**	**3**
PC12. ensure completion of administrative jobs like site clearance, return of test equipment etc	2	3	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. confirm effectiveness of the maintenance process, by monitoring site alarm status in coordination with the NOC team	2	3	-	-
PC14. notify all relevant parties about the results of the maintenance result to obtain the sign-off from relevant personnel	1	3	-	1
PC15. identify documents to be updated and to be made available for inspection	1	3	-	-
PC16. complete routine maintenance logs, activity logs and spare tracker within stipulated timeline	1	4	-	1
NOS Total	**35**	**55**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N6102
NOS Name	Upgrade Passive Infrastructure at Radio Locations
Sector	Telecom
Sub-Sector	Network Managed Services
Occupation	Operations and Maintenance - Passive Infrastructure
NSQF Level	5
Credits	TBD
Version	2.0
Last Reviewed Date	30/12/2021
Next Review Date	30/12/2025
NSQC Clearance Date	30/12/2021

TEL/N6103: Perform other Operational Activities at Radio Sites

Description

This OS unit is about carrying out operational activities at site like ensuring timely diesel filling, obtaining clearances for site, validating accuracy of invoices and ensuring timely payments.

Scope

The scope covers the following :

- Undertake site operation activities Report and document the status

Elements and Performance Criteria

Undertake site operation activities

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

PC1. supervise deployment of diesel fillers at sites to fill diesel in DG sets as per required frequency of diesel filling

PC2. monitor site-wise diesel usage to avoid diesel pilferage and/or excess usage by equipment

PC3. prepare a list of site clearances that are required to be obtained and the expiry dates of any certificate already obtained

PC4. perform site key management and provide access to the Field Maintenance (FM) Engineers and other vendors (post availability of relevant permissions)

Report and document the status

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

PC5. ensure certificates are renewed/obtained from relevant authorities within the due date

PC6. record details of diesel filling activity, such as date and amount of diesel filled, as per company norms in the required format

PC7. maintain site-wise Electricity Board (EB) connection, diesel and rent details/files received from the vendors (invoices/as per contract) from the supervisors/finance team

PC8. verify the details in the invoice based on site availability, electricity and diesel usage

PC9. report any discrepancies to appropriate personnel, else confirm accuracy of invoices

PC10. supervise coordination with the finance team that bills are paid on timely basis to avoid late payment charges

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. passive infrastructure equipment like DG set, PIU panel, earthing systems, transformer, SMPS, air conditioner, battery

KU2. performance of site wise diesel usage analysis to detect cases of diesel pilferage

KU3. site power requirements based on equipment rating

KU4. list of certifications applicable for sites and process of obtaining certificates from the concerned authorities

KU5. risk and impact of non availability of EB connection

KU6. calculation of diesel and EB bill amounts based on site usage to ratify vendor invoices

KU7. risk and impact of delayed payment of bills

Generic Skills (GS)

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

GS1. communicate in the local language (preferable)

GS2. take initiatives and progressively assume increased responsibilities

GS3. communicate with supervisors and other technicians respectfully

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Undertake site operation activities	**12**	**26**	**-**	**4**
PC1. supervise deployment of diesel fillers at sites to fill diesel in DG sets as per required frequency of diesel filling	3	6	-	1
PC2. monitor site-wise diesel usage to avoid diesel pilferage and/or excess usage by equipment	2	5	-	1
PC3. prepare a list of site clearances that are required to be obtained and the expiry dates of any certificate already obtained	3	7	-	1
PC4. perform site key management and provide access to the Field Maintenance (FM) Engineers and other vendors (post availability of relevant permissions)	4	8	-	1
Report and document the status	**13**	**39**	**-**	**6**
PC5. ensure certificates are renewed/obtained from relevant authorities within the due date	2	5	-	1
PC6. record details of diesel filling activity, such as date and amount of diesel filled, as per company norms in the required format	2	6	-	1
PC7. maintain site-wise Electricity Board (EB) connection, diesel and rent details/files received from the vendors (invoices/as per contract) from the supervisors/finance team	2	8	-	1
PC8. verify the details in the invoice based on site availability, electricity and diesel usage	2	7	-	1
PC9. report any discrepancies to appropriate personnel, else confirm accuracy of invoices	2	7	-	1
PC10. supervise coordination with the finance team that bills are paid on timely basis to avoid late payment charges	3	6	-	1
NOS Total	**25**	**65**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N6103
NOS Name	Perform other Operational Activities at Radio Sites
Sector	Telecom
Sub-Sector	Network Managed Services
Occupation	Operations and Maintenance - Passive Infrastructure
NSQF Level	5
Credits	TBD
Version	2.0
Last Reviewed Date	30/12/2021
Next Review Date	30/12/2025
NSQC Clearance Date	30/12/2021

TEL/N9103: Implement Effective Interaction at workplace

Description

This OS unit is about communicating 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. interpret work requirements from the superior and customers

PC2. report any unforeseen disruptions or delays to superiors and/or concerned person

PC3. achieve productivity and quality of work as per the company procedure

Interact effectively with colleagues and customers

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

PC4. explain the work requirements and the scope of work to the team

PC5. communicate information using different techniques such as face-to-face, telephonic and written means

PC6. co-ordinate with team to integrate work as per requirements

PC7. respect colleagues and customers and communicate taking care of their personal spaces

PC8. find solutions to work related difficulties with mutual agreement with colleagues and customers

PC9. resolve conflicts within the team at work to achieve smooth workflow

PC10. motivate team members to put organizational goals over individual goals

PC11. encourage the team to provide feedback on any issues facing them

Respect differences of gender and ability

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

PC12. ensure personal behaviour of self and team is conducted taking gender and disability of the person into consideration

PC13. demonstrate sensitivity towards gender and person with disability while communicating

PC14. list the different types of disabilities with their respective issues

PC15. provide help to PwD team members in overcoming any challenges faced in work

PC16. use inclusive language irrespective of the disability and the gender of the person

PC17. treat all colleagues and co-workers equally

PC18. respect personal space of colleagues and co-workers

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. importance of effective and different means of communication and establishing good working relationships with colleagues and superiors
KU2. importance of helping colleagues with problems, in order to meet quality and time standards as a team
KU3. different methods of communication
KU4. different types of information that colleagues might need and the importance of providing this information in an appropriate manner
KU5. helping colleagues with problems, in order to meet quality and time standards as a team
KU6. organisation's policies and procedures for working with colleagues and superior
KU7. implications of own work on the work and schedule of others
KU8. importance of understanding consequences of gender based 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. rights and duties at workplace with respect to PwD
KU13. process of recruiting people for a particular job profile w.r.t PwD and gender
KU14. 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. complete written work with attention to detail and read instructions/guidelines/procedures
GS2. listen effectively and orally communicate information
GS3. ask for clarification and advice from the concerned person
GS4. deliver consistent and reliable service to customers
GS5. check that the work meets customer requirements
GS6. practice and acceptance of gender and its concepts
GS7. develop empathy across genders and towards PwD
GS8. reflect on own gender identity, gender roles and PwD issues
GS9. engage and participate in discussions to end gender and disability discrimination
GS10. improve and modify work practices
GS11. maintain positive and effective relationships with colleagues and customers
GS12. evaluate the possible solution(s) to the problem

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Interact effectively with superiors	**2**	**9**	**-**	**1**
PC1. interpret work requirements from the superior and customers	1	2	-	-
PC2. report any unforeseen disruptions or delays to superiors and/or concerned person	1	2	-	1
PC3. achieve productivity and quality of work as per the company procedure	-	5	-	-
Interact effectively with colleagues and customers	**13**	**27**	**-**	**5**
PC4. explain the work requirements and the scope of work to the team	2	3	-	-
PC5. communicate information using different techniques such as face-to-face, telephonic and written means	2	4	-	1
PC6. co-ordinate with team to integrate work as per requirements	-	4	-	1
PC7. respect colleagues and customers and communicate taking care of their personal spaces	-	3	-	-
PC8. find solutions to work related difficulties with mutual agreement with colleagues and customers	3	3	-	-
PC9. resolve conflicts within the team at work to achieve smooth workflow	-	4	-	1
PC10. motivate team members to put organizational goals over individual goals	3	4	-	1
PC11. encourage the team to provide feedback on any issues facing them	3	2	-	1
Respect differences of gender and ability	**15**	**24**	**-**	**4**
PC12. ensure personal behaviour of self and team is conducted taking gender and disability of the person into consideration	2	4	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. demonstrate sensitivity towards gender and person with disability while communicating	2	3	-	1
PC14. list the different types of disabilities with their respective issues	2	3	-	1
PC15. provide help to PwD team members in overcoming any challenges faced in work	2	3	-	-
PC16. use inclusive language irrespective of the disability and the gender of the person	2	3	-	1
PC17. treat all colleagues and co-workers equally	2	3	-	-
PC18. respect personal space of colleagues and co-workers	3	5	-	1
NOS Total	**30**	**60**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N9103
NOS Name	Implement Effective Interaction at workplace
Sector	Telecom
Sub-Sector	Generic
Occupation	Generic
NSQF Level	5
Credits	TBD
Version	1.0
Last Reviewed Date	24/02/2022
Next Review Date	24/02/2026
NSQC Clearance Date	24/02/2022

TEL/N9104: Manage Work, Resources and Safety at workplace

Description

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

Scope

The scope covers the following :

- Manage learning and self-direction
- Develop critical thinking and problem solving
- Perform work as per quality standards
- Maintain safe and secure working environment
- Comply with material / energy / electricity conservation practices

Elements and Performance Criteria

Manage learning and self-direction

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

PC1. develop technical and personal skills to be updated with new technologies prevalent in the industry

PC2. train the team such that they are able to adapt latest products/services in their working environment

PC3. identify opportunities for team building workshops and motivational trainings

Develop critical thinking and problem solving

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

PC4. guide the team to be accountable for timely completion of tasks

PC5. analyse problems accurately to be able to correctly suggest suitable solutions to the concerned persons

PC6. train the team to estimate the cause of the problem and validate

Perform work as per quality standards

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

PC7. implement ways to keep immediate as well as team's work area clean and tidy

PC8. maintain efficiency and productivity while performing role/responsibility

PC9. supervise the team to ensure that the work is done as per the assigned and agreed requirements

PC10. create schedules and rosters for the team to ensure they understand individual work requirements

Maintain safe and secure working environment

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

PC11. identify organisation’s health, safety, security policies and procedures

PC12. instruct team to report any identified breaches in health, safety, and security policies and procedures to the designated person

PC13. manage 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

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

Material / energy / electricity conservation practices

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

PC15. implement ways to optimize usage of material including water in various tasks/activities/processes

PC16. supervise the team to ensure responsible use of resources

PC17. motivate the team to carry out routine cleaning of tools, machine and equipment

PC18. guide the team to optimize use of electricity/energy in various tasks/activities/processes

PC19. implement periodic checks of the functioning of the equipment/machine and rectify wherever required

PC20. guide the team to report malfunctioning and lapses in maintenance of equipment

PC21. implement ways to use electrical equipment and appliances properly

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. strategies pertinent to the field that can be used to pursue an advancement of 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. layout of the workstation and equipment used

KU7. escalation matrix and its importance, especially in case of emergencies

KU8. ways of time and cost management

KU9. rules/regulation for maintaining health and safety at workplace

KU10. meaning of hazard, different types of health and safety hazards found in the workplace, risks and threats based on the nature of work

KU11. procedures to report breaches in health, safety and security

KU12. ways of managing resources and material efficiently

KU13. ways to recognize common electrical problems and common practices of conserving electricity

Generic Skills (GS)

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

GS1. explore various pathways to expand one's own learning skills and abilities

GS2. analyse feedback for improving one's way of working
GS3. interpret feedback from superiors in a constructive way
GS4. identify the root cause of problems
GS5. understand the problem by asking significant questions to clarify the various points of view on the problem
GS6. seek clarifications from superior about the job requirement
GS7. work in a team with full coordination of team members
GS8. read instructions/guidelines and Standard Operating Practices (SOP) documents
GS9. complete tasks efficiently and accurately within stipulated time
GS10. record data in statutory documents relevant to safety and hygiene
GS11. escalate/refer all anomalies to the concerned persons
GS12. identify the most suitable course of action for completing the task using provided resources

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Manage learning and self-direction	**4**	**5**	**-**	**-**
PC1. develop technical and personal skills to be updated with new technologies prevalent in the industry	2	1	-	-
PC2. train the team such that they are able to adapt latest products/services in their working environment	1	2	-	-
PC3. identify opportunities for team building workshops and motivational trainings	1	2	-	-
Develop critical thinking and problem solving	**4**	**7**	**-**	**-**
PC4. guide the team to be accountable for timely completion of tasks	2	3	-	-
PC5. analyse problems accurately to be able to correctly suggest suitable solutions to the concerned persons	1	2	-	-
PC6. train the team to estimate the cause of the problem and validate	1	2	-	-
Perform work as per quality standards	**5**	**9**	**-**	**4**
PC7. implement ways to keep immediate as well as team's work area clean and tidy	1	2	-	-
PC8. maintain efficiency and productivity while performing role/responsibility	1	2	-	2
PC9. supervise the team to ensure that the work is done as per the assigned and agreed requirements	1	2	-	1
PC10. create schedules and rosters for the team to ensure they understand individual work requirements	2	3	-	1
Maintain safe and secure working environment	**12**	**13**	**-**	**2**
PC11. identify organisation’s health, safety, security policies and procedures	3	3	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. instruct team to report any identified breaches in health, safety, and security policies and procedures to the designated person	3	3	-	-
PC13. manage 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	3	4	-	1
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	3	3	-	1
Material / energy / electricity conservation practices	**15**	**16**	**-**	**4**
PC15. implement ways to optimize usage of material including water in various tasks/activities/processes	1	2	-	1
PC16. supervise the team to ensure responsible use of resources	2	2	-	1
PC17. motivate the team to carry out routine cleaning of tools, machine and equipment	2	2	-	1
PC18. guide the team to optimize use of electricity/energy in various tasks/activities/processes	3	4	-	-
PC19. implement periodic checks of the functioning of the equipment/machine and rectify wherever required	2	2	-	1
PC20. guide the team to report malfunctioning and lapses in maintenance of equipment	3	2	-	-
PC21. implement ways to use electrical equipment and appliances properly	2	2	-	-
NOS Total	**40**	**50**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N9104
NOS Name	Manage Work, Resources and Safety at workplace
Sector	Telecom
Sub-Sector	Generic
Occupation	Generic
NSQF Level	5
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/N6100.Perform Preventive and Corrective Maintenance of Passive Infrastructure Equipment	35	55	0	10	100	20
TEL/N6102.Upgrade Passive Infrastructure at Radio Locations	35	55	0	10	100	20
TEL/N6103.Perform other Operational Activities at Radio Sites	25	65	0	10	100	20
TEL/N9103.Implement Effective Interaction at workplace	30	60	-	10	100	20
TEL/N9104.Manage Work, Resources and Safety at workplace	40	50	-	10	100	20
Total	**165**	**285**	**-**	**50**	**500**	**100**

Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training
AMF Panel	Auto Man Failure
DG set	Diesel Generator Set
EB connection	Electricity Board Connection
FM Engineer	Field Maintenance Engineer
MCB	Miniature Circuit Breaker
OHS	Organizational Health & Safety
PIU	Power Interface unit
SHE	Safety Health & Environment
SMPS	Switch Mode Power Supply

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.
Sector	Sector is a conglomeration of different business operations having similar businesses 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.
Function	Function is an activity necessary for achieving the key purpose of the sector, occupation, or area of work, which can be carried out by a person or a group of persons. Functions are identified through functional analysis and form the basis of OS.
Job Role	Job role defines a unique set of functions that together form a unique employment opportunity in an organization.
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 they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.

Performance Criteria	Performance Criteria are statements that together specify the standard of performance required when carrying out a task.
NOS	NOS are Occupational Standards which apply uniquely in the Indian context.
Qualifications Pack Code	Qualifications Pack Code is a unique reference code that identifies a qualifications pack.
Qualifications Pack	Qualifications Pack comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A qualifications Pack is assigned a unique qualification pack code.
Unit Code	Unit Code is a unique identifier for an Occupational Standard, which is denoted by an â€˜Nâ€™.
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.
Knowledge and Understanding	Knowledge and Understanding are statements which together specify the technical, generic, professional and organizational specific knowledge that an individual needs in order to perform to the required standard.
Organizational Context	Organizational Context includes the way the organization 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 or Generic Skills	Core Skills or Generic Skills are a group of skills that are key to learning and working 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.'