



Broadband Network Technician

QP Code: TEL/Q4110

Version: 1.0

NSQF Level: 4

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TEL/Q4110: Broadband Network Technician

Brief Job Description

The Broadband Network Technician is responsible for the installation, configuration, testing, and maintenance of broadband network infrastructure, including optical fiber cables (OFC), related passive components, and customer premises equipment (CPE). The role involves splicing, jointing, and termination of fiber cables configuring broadband connectivity, troubleshooting network and customer faults and maintaining quality, safety, and documentation standards. The technician works in coordination with the Network Operations Center (NOC), field teams, and customers to ensure uninterrupted broadband services in compliance with organisational and industry norms.

Personal Attributes

The individual should have strong problem-solving abilities, attention to detail, and a customer-focused mindset. They should be physically fit to work in both indoor and outdoor environments, including at heights and in confined spaces. Good communication skills, teamwork, and adaptability to changing technology are essential. The role requires the ability to follow safety protocols, maintain composure under pressure, and demonstrate professionalism in customer interactions.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. [TEL/N6281: Install and Commission Optical Fiber Cables for Broadband Networks](#)
2. [TEL/N6282: Perform Preventive and Corrective Maintenance of Optical Fiber Networks](#)
3. [TEL/N6283: Install and Configure Customer Premises Equipment \(CPE\) for Broadband Services](#)
4. [TEL/N6284: Troubleshoot and Rectify Broadband Network Faults](#)
5. [TEL/N6285: Maintain Workplace Safety, Resource Optimization, and Hygiene Standards](#)
6. [TEL/N6287: Operational Skills](#)
7. [DGT/VSQ/N0101: Employability Skills \(30 Hours\)](#)

Qualification Pack (QP) Parameters

Sector	Telecom
Sub-Sector	Passive Infrastructure

Occupation	Operations and Maintenance - Passive Infrastructure, Operations and Maintenance - Passive Infrastructure
Country	India
NSQF Level	4
Credits	20
Aligned to NCO/ISCO/ISIC Code	NCO-2015/3114.0804
Minimum Educational Qualification & Experience	12th grade Pass OR Completed 2nd year of the 3-year diploma after 10 (Diploma in Telecommunications/Electronics/ IT/AI/ Computer science/Industrial/Electrical etc. or a combination of these) OR Previous relevant Qualification of NSQF Level (NSQF Level 3.5) with 1.5 years of experience Relevant experience OR Previous relevant Qualification of NSQF Level (NSQF Level 3) with 3 Years of experience Relevant experience
Minimum Level of Education for Training in School	12th Class
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	NA
Next Review Date	NA
NSQC Approval Date	
Version	1.0

TEL/N6281: Install and Commission Optical Fiber Cables for Broadband Networks

Description

This NOS covers preparing, installing, splicing, jointing, and terminating optical fiber cables in compliance with route plans, manufacturer specifications, and industry standards. Includes conducting pre-commissioning tests, applying protective measures, and completing installation documentation.

Scope

The scope covers the following :

- Install and commission optical fiber cables and related network equipment as per route plan.
- Conduct splicing, jointing, and termination of fiber cables.
- Ensure compliance with industry standards and safety guidelines.
- Perform initial quality checks and prepare documentation for commissioning.

Elements and Performance Criteria

Prepare for optical fiber cable installation

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

- PC1.** obtain and interpret the installation work order and route plan from the supervisor
- PC2.** inspect the proposed route to ensure it meets manufacturer specifications and industry standards (bend ratios, clearance, hazards)
- PC3.** liaise with relevant authorities to obtain necessary clearances and permits
- PC4.** identify and collect required tools, equipment, and safety gear for installation
- PC5.** Verify operational condition of tools and test equipment before deployment

Install and commission optical fiber cable

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

- PC6.** perform trenching, duct preparation, cable laying, and blowing as per standard operating procedures
- PC7.** execute fiber cable preparation, splicing, jointing, and termination using appropriate tools
- PC8.** apply cable sealing and protective measures to prevent environmental damage
- PC9.** test cable on drum for optical continuity before laying
- PC10.** conduct initial signal strength and loss tests using OTDR, power meter, and visual fault locator
- PC11.** label cables, joints, and termination points as per organisational guidelines
- PC12.** restore the worksite to original condition and dispose waste material as per environmental norms

Complete documentation and handover

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

- PC13.** record OTDR and power meter test results in prescribed formats
- PC14.** update installation records including route maps, joint details, and termination points
- PC15.** submit commissioning reports and test certificates to the supervisor for approval

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** standard operating procedures for OFC installation and commissioning.
- KU2.** organisational quality, safety, and environmental policies.
- KU3.** escalation procedures for faults and deviations.
- KU4.** principles of optical fiber transmission (attenuation, dispersion, refraction, etc.).
- KU5.** types of optical fiber (single mode, multi-mode) and their applications.
- KU6.** installation equipment (tubing cutter, slitting tool, splicer, OTDR, power meter) and their usage.
- KU7.** cable handling and bend radius guidelines.
- KU8.** cable jointing, splicing, and termination methods.
- KU9.** cable testing methods and interpreting OTDR results.
- KU10.** documentation and record-keeping formats.

Generic Skills (GS)

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

- GS1.** communicate effectively with supervisors, peers, and customers.
- GS2.** read and interpret technical documents, route maps, and diagrams.
- GS3.** plan and prioritise installation activities to meet timelines.
- GS4.** identify and troubleshoot basic issues during installation.
- GS5.** use IT tools for documentation and reporting.
- GS6.** maintain hygiene and safety standards at the worksite.
- GS7.** work effectively in a team during large-scale installations.
- GS8.** adapt to changing work conditions and site challenges.

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare for optical fiber cable installation</i>	9	17	-	9
PC1. obtain and interpret the installation work order and route plan from the supervisor	1	3	-	2
PC2. inspect the proposed route to ensure it meets manufacturer specifications and industry standards (bend ratios, clearance, hazards)	2	3	-	2
PC3. liaise with relevant authorities to obtain necessary clearances and permits	2	5	-	2
PC4. identify and collect required tools, equipment, and safety gear for installation	2	3	-	2
PC5. Verify operational condition of tools and test equipment before deployment	2	3	-	1
<i>Install and commission optical fiber cable</i>	14	22	-	8
PC6. perform trenching, duct preparation, cable laying, and blowing as per standard operating procedures	2	4	-	2
PC7. execute fiber cable preparation, splicing, jointing, and termination using appropriate tools	2	3	-	2
PC8. apply cable sealing and protective measures to prevent environmental damage	2	4	-	-
PC9. test cable on drum for optical continuity before laying	2	4	-	2
PC10. conduct initial signal strength and loss tests using OTDR, power meter, and visual fault locator	2	1	-	-
PC11. label cables, joints, and termination points as per organisational guidelines	2	3	-	1
PC12. restore the worksite to original condition and dispose waste material as per environmental norms	2	3	-	1
<i>Complete documentation and handover</i>	7	11	-	3

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. record OTDR and power meter test results in prescribed formats	2	3	-	1
PC14. update installation records including route maps, joint details, and termination points	2	3	-	1
PC15. submit commissioning reports and test certificates to the supervisor for approval	3	5	-	1
NOS Total	30	50	-	20

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N6281
NOS Name	Install and Commission Optical Fiber Cables for Broadband Networks
Sector	Telecom
Sub-Sector	
Occupation	Network Operation and Maintenance
NSQF Level	4
Credits	5
Version	1.0
Next Review Date	NA

TEL/N6282: Perform Preventive and Corrective Maintenance of Optical Fiber Networks

Description

This NOS conducting scheduled maintenance, performing OTDR and power meter tests, identifying and rectifying faults in optical fiber cables, and ensuring service restoration. Involves maintaining asset registers and escalating unresolved issues as per protocol.

Scope

The scope covers the following :

- Carry out periodic preventive maintenance of optical fiber cables and associated equipment.
- Perform corrective actions to restore service in case of faults.
- Maintain OTDR, power meter, and asset registers.
- Ensure adherence to safety, quality, and operational standards.

Elements and Performance Criteria

Plan and conduct preventive maintenance

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

- PC1.** obtain the maintenance schedule and as-built drawings from the supervisor.
- PC2.** verify equipment availability and operational status before starting maintenance.
- PC3.** inspect optical fiber cable routes for physical damages, hazards, or obstructions.
- PC4.** conduct OTDR and power meter tests for dark/spare fibers as per standard procedures.
- PC5.** test end-to-end link for adherence to link budget and identify loss/reflection points.
- PC6.** perform cleaning and general maintenance of tools and test equipment.
- PC7.** update maintenance records and asset registers in prescribed formats.

Perform corrective maintenance

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

- PC8.** receive and acknowledge fault notification from NOC or supervisor.
- PC9.** conduct standard fault diagnosis to localise the fault.
- PC10.** perform duct integrity tests (air tightness, kink-free, etc.) to ensure service readiness.
- PC11.** repair or replace faulty cables, joints, or connectors following manufacturer guidelines.
- PC12.** verify joint activities and ensure proper sealing and environmental protection.
- PC13.** coordinate with labour teams for trench backfilling and route restoration.
- PC14.** record jointing test readings and generate acceptance reports.

Documentation and escalation

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

- PC15.** prepare detailed maintenance and repair reports for submission.
- PC16.** escalate unresolved or recurring issues to the supervisor/NOC with supporting test data.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** company-specific preventive and corrective maintenance procedures.
- KU2.** standard fault escalation protocols.
- KU3.** quality and safety compliance requirements for maintenance work.
- KU4.** types and usage of OFC testing equipment (OTDR, power meter, light meter, etc.).
- KU5.** procedures for link budget calculation and performance thresholds.
- KU6.** common causes of OFC faults (environmental, mechanical, installation defects).
- KU7.** fault localisation techniques using test equipment.
- KU8.** duct testing methods and safety precautions.
- KU9.** jointing techniques and sealing procedures.
- KU10.** reporting formats and digital documentation tools.

Generic Skills (GS)

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

- GS1.** interpret technical data from OTDR and power meter readings.
- GS2.** communicate test results clearly to supervisors and NOC teams.
- GS3.** prioritise tasks during emergency fault repair.
- GS4.** apply safe handling practices for tools and chemicals.
- GS5.** maintain accurate asset and maintenance registers.
- GS6.** use MS Office or other digital tools for reporting.
- GS7.** work collaboratively during large-scale repair operations.
- GS8.** adapt maintenance methods to site-specific conditions.

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Plan and conduct preventive maintenance</i>	12	20	-	7
PC1. obtain the maintenance schedule and as-built drawings from the supervisor.	1	3	-	1
PC2. verify equipment availability and operational status before starting maintenance.	1	3	-	1
PC3. inspect optical fiber cable routes for physical damages, hazards, or obstructions.	2	2	-	1
PC4. conduct OTDR and power meter tests for dark/spare fibers as per standard procedures.	2	3	-	1
PC5. test end-to-end link for adherence to link budget and identify loss/reflection points.	2	3	-	1
PC6. perform cleaning and general maintenance of tools and test equipment.	2	3	-	1
PC7. update maintenance records and asset registers in prescribed formats.	2	3	-	1
<i>Perform corrective maintenance</i>	14	24	-	8
PC8. receive and acknowledge fault notification from NOC or supervisor.	2	4	-	1
PC9. conduct standard fault diagnosis to localise the fault.	2	4	-	1
PC10. perform duct integrity tests (air tightness, kink-free, etc.) to ensure service readiness.	2	4	-	1
PC11. repair or replace faulty cables, joints, or connectors following manufacturer guidelines.	2	3	-	1
PC12. verify joint activities and ensure proper sealing and environmental protection.	2	3	-	2
PC13. coordinate with labour teams for trench backfilling and route restoration.	2	3	-	1
PC14. record jointing test readings and generate acceptance reports.	2	3	-	1
<i>Documentation and escalation</i>	4	6	-	5

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC15. prepare detailed maintenance and repair reports for submission.	2	3	-	2
PC16. escalate unresolved or recurring issues to the supervisor/NOC with supporting test data.	2	3	-	3
NOS Total	30	50	-	20

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N6282
NOS Name	Perform Preventive and Corrective Maintenance of Optical Fiber Networks
Sector	Telecom
Sub-Sector	
Occupation	Network Operation and Maintenance
NSQF Level	4
Credits	4.5
Version	1.0
Next Review Date	NA

TEL/N6283: Install and Configure Customer Premises Equipment (CPE) for Broadband Services

Description

This NOS installation of system wiring and CPE devices such as modems, routers, and UPS at customer premises. Includes configuring connectivity settings, conducting performance tests, and providing customers with basic troubleshooting guidance.

Scope

The scope covers the following :

- Install cable/system wiring and CPE at customer premises as per standards.
- Configure CPE for broadband connectivity with service provider gateway and end-user devices.
- Perform post-installation testing and provide basic troubleshooting guidance to customers.

Elements and Performance Criteria

Prepare for installation at customer premises

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

- PC1.** review customer work order and site requirements from the supervisor.
- PC2.** identify and collect required cables, connectors, tools, and equipment for installation.
- PC3.** inspect indoor and outdoor cable routes to ensure accessibility and compliance with cabling norms.
- PC4.** ensure installation location has adequate power points and proper signal coverage.
- PC5.** follow organisational SHE (Safety, Health, Environment) guidelines before starting work

Install cable wiring and CPE

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

- PC6.** perform cable crimping, splicing, soldering, and connectorisation as per manufacturer standards.
- PC7.** lay and secure cable wiring from entry point to CPE location, avoiding bends and physical stress points.
- PC8.** install CPE devices such as modems, routers, switches, and UPS.
- PC9.** conduct post-installation cable and joint testing for transmission loss and strength.
- PC10.** dispose of installation waste and restore the work site to its original state.

Configure broadband connectivity

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

- PC11.** access CPE settings and configure parameters such as IP address, gateway, subnet mask, and DNS.
- PC12.** establish LAN and/or Wi-Fi connectivity between CPE and end-user devices (PC, laptop, smart TV, etc.).
- PC13.** execute network testing commands such as ping and ipconfig to verify connectivity.
- PC14.** conduct speed tests and record throughput data for documentation.

- PC15.** demonstrate basic troubleshooting steps to customers for resolving common connectivity issues.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** standard installation and configuration procedures for CPE.
- KU2.** customer service protocols and escalation processes.
- KU3.** organisational safety guidelines for on-site work.
- KU4.** types of broadband network topologies and their applications.
- KU5.** cable types, connectors, and wiring standards.
- KU6.** function and configuration of modems, routers, and switches.
- KU7.** TCP/IP concepts, IPv4 and IPv6 addressing.
- KU8.** LAN/Wi-Fi configuration methods.
- KU9.** common CPE issues and basic troubleshooting steps.
- KU10.** network testing tools and commands.

Generic Skills (GS)

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

- GS1.** communicate politely and effectively with customers.
- GS2.** read and interpret technical manuals and installation diagrams.
- GS3.** maintain a professional appearance and worksite etiquette.
- GS4.** use digital tools for recording installation details.
- GS5.** demonstrate problem-solving for minor installation challenges.
- GS6.** manage time effectively during site visits.
- GS7.** adapt to different customer premises layouts and requirements.
- GS8.** work safely in both indoor and outdoor environments.

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare for installation at customer premises</i>	10	15	-	10
PC1. review customer work order and site requirements from the supervisor.	2	3	-	2
PC2. identify and collect required cables, connectors, tools, and equipment for installation.	2	3	-	2
PC3. inspect indoor and outdoor cable routes to ensure accessibility and compliance with cabling norms.	2	3	-	2
PC4. ensure installation location has adequate power points and proper signal coverage.	2	3	-	2
PC5. follow organisational SHE (Safety, Health, Environment) guidelines before starting work	2	3	-	2
<i>Install cable wiring and CPE</i>	10	17	-	5
PC6. perform cable crimping, splicing, soldering, and connectorisation as per manufacturer standards.	2	4	-	1
PC7. lay and secure cable wiring from entry point to CPE location, avoiding bends and physical stress points.	2	3	-	1
PC8. install CPE devices such as modems, routers, switches, and UPS.	2	3	-	1
PC9. conduct post-installation cable and joint testing for transmission loss and strength.	2	4	-	1
PC10. dispose of installation waste and restore the work site to its original state.	2	3	-	1
<i>Configure broadband connectivity</i>	10	18	-	5
PC11. access CPE settings and configure parameters such as IP address, gateway, subnet mask, and DNS.	2	4	-	1
PC12. establish LAN and/or Wi-Fi connectivity between CPE and end-user devices (PC, laptop, smart TV, etc.).	2	3	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. execute network testing commands such as ping and ipconfig to verify connectivity.	2	3	-	1
PC14. conduct speed tests and record throughput data for documentation.	2	4	-	1
PC15. demonstrate basic troubleshooting steps to customers for resolving common connectivity issues.	2	4	-	1
NOS Total	30	50	-	20

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N6283
NOS Name	Install and Configure Customer Premises Equipment (CPE) for Broadband Services
Sector	Telecom
Sub-Sector	
Occupation	Network Operation and Maintenance
NSQF Level	4
Credits	5
Version	1.0
Next Review Date	NA

TEL/N6284: Troubleshoot and Rectify Broadband Network Faults

Description

This NOS diagnosing and repairing broadband faults in cables, connectors, and CPE. Includes identifying root causes, performing repairs, conducting verification tests, and documenting closure of service tickets.

Scope

The scope covers the following :

- Diagnose and rectify faults in broadband network infrastructure, including cables, connectors, and CPE.
- Restore service functionality to meet quality and performance standards.
- Document fault repair activities and update service records

Elements and Performance Criteria

Diagnose network faults

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

- PC1.** receive and acknowledge fault notification from NOC, supervisor, or customer.
- PC2.** gather preliminary fault information, including customer-reported symptoms and service history.
- PC3.** test cables using OTDR, signal level meters, or other diagnostic tools to localise the fault.
- PC4.** identify CPE faults through device diagnostics, command-line utilities, or inbuilt software tools.
- PC5.** determine probable cause of service degradation or outage based on test results and observations.

Rectify network faults

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

- PC6.** repair or replace damaged cables, connectors, or network elements as per standard procedures.
- PC7.** perform re-connectorisation, splicing, or crimping to restore cable integrity.
- PC8.** reconfigure or reset CPE to restore connectivity with service provider gateway and end-user devices.
- PC9.** eliminate sources of interference or signal leakage as per organisational guidelines.
- PC10.** verify restoration of services by conducting connectivity and speed tests.
- PC11.** restore any changes made to the worksite during repair to its original state.

Complete fault closure process

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

- PC12.** document all troubleshooting steps, test readings, and repair activities in the prescribed format.
- PC13.** update customer service records with repair details.
- PC14.** obtain customer sign-off after confirming fault resolution.
- PC15.** escalate recurring or unresolved faults to the supervisor or NOC for further action.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** company-specific fault management and escalation processes.
- KU2.** organisational quality and safety standards for troubleshooting activities.
- KU3.** service level agreement (SLA) parameters for fault rectification.
- KU4.** transmission, switching, and operation principles of broadband networks.
- KU5.** electromagnetic interference (EMI) causes and mitigation methods.
- KU6.** cable testing methods using OTDR, signal level meters, and continuity testers.
- KU7.** CPE diagnostics and configuration tools.
- KU8.** common causes of network service degradation.
- KU9.** re-connectorisation, splicing, and crimping techniques.
- KU10.** documentation and reporting formats for fault closure.

Generic Skills (GS)

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

- GS1.** communicate fault status updates to customers and supervisors.
- GS2.** interpret test data to pinpoint network issues.
- GS3.** work systematically under time constraints.
- GS4.** use digital tools for updating service tickets and repair logs.
- GS5.** apply analytical skills to identify root causes.
- GS6.** work independently for minor repairs and in teams for complex issues.
- GS7.** follow safety protocols during on-site troubleshooting.
- GS8.** maintain professional behaviour in customer premises.

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Diagnose network faults</i>	10	12	-	5
PC1. receive and acknowledge fault notification from NOC, supervisor, or customer.	2	3	-	1
PC2. gather preliminary fault information, including customer-reported symptoms and service history.	2	3	-	1
PC3. test cables using OTDR, signal level meters, or other diagnostic tools to localise the fault.	2	-	-	1
PC4. identify CPE faults through device diagnostics, command-line utilities, or inbuilt software tools.	2	3	-	1
PC5. determine probable cause of service degradation or outage based on test results and observations.	2	3	-	1
<i>Rectify network faults</i>	11	23	-	12
PC6. repair or replace damaged cables, connectors, or network elements as per standard procedures.	2	6	-	2
PC7. perform re-connectorisation, splicing, or crimping to restore cable integrity.	2	4	-	2
PC8. reconfigure or reset CPE to restore connectivity with service provider gateway and end-user devices.	2	4	-	2
PC9. eliminate sources of interference or signal leakage as per organisational guidelines.	2	3	-	2
PC10. verify restoration of services by conducting connectivity and speed tests.	2	3	-	2
PC11. restore any changes made to the worksite during repair to its original state.	1	3	-	2
<i>Complete fault closure process</i>	9	15	-	3
PC12. document all troubleshooting steps, test readings, and repair activities in the prescribed format.	2	2	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. update customer service records with repair details.	2	5	-	1
PC14. obtain customer sign-off after confirming fault resolution.	2	4	-	-
PC15. escalate recurring or unresolved faults to the supervisor or NOC for further action.	3	4	-	1
NOS Total	30	50	-	20

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N6284
NOS Name	Troubleshoot and Rectify Broadband Network Faults
Sector	Telecom
Sub-Sector	
Occupation	Network Operation and Maintenance
NSQF Level	4
Credits	3.5
Version	1.0
Next Review Date	NA

TEL/N6285: Maintain Workplace Safety, Resource Optimization, and Hygiene Standards

Description

This NOS workplace safety practices, using personal protective equipment (PPE), optimising the use of resources, and maintaining workplace hygiene. Includes waste segregation, disposal, and adherence to environmental norms.

Scope

The scope covers the following :

- Plan and organise work to ensure compliance with safety, health, and environmental standards.
- Optimise the use of resources at the workplace.
- Maintain personal hygiene, workplace cleanliness, and waste management in line with organisational and statutory requirements.

Elements and Performance Criteria

Plan work effectively and optimise resources

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

- PC1.** prepare a time schedule for tasks to meet given deadlines.
- PC2.** identify materials, tools, and equipment required for the assigned job.
- PC3.** use materials, tools, and equipment efficiently to minimise wastage.
- PC4.** follow organisational practices to optimise energy, water, and other resources.

Maintain safety standards

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

- PC5.** identify potential hazards at the workplace and report them to the supervisor.
- PC6.** use appropriate personal protective equipment (PPE) such as gloves, goggles, helmets, and safety shoes.
- PC7.** follow safe postures and handling techniques while working with tools and hazardous materials.
- PC8.** participate in safety drills, fire safety workshops, and first-aid sessions.
- PC9.** demonstrate safe evacuation procedures in case of an emergency.

Maintain hygiene and waste management

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

- PC10.** keep the workplace clean, organised, and free from obstacles.
- PC11.** follow basic hygiene practices such as handwashing, use of sanitiser, and personal cleanliness.
- PC12.** segregate waste into recyclable and non-recyclable categories using appropriate bins.
- PC13.** dispose of hazardous and non-hazardous waste as per environmental norms.
- PC14.** report any breaches in organisational hygiene or sanitation guidelines.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** workplace safety and health policies of the organisation.
- KU2.** resource conservation policies and environmental guidelines.
- KU3.** standard reporting procedures for hazards and safety violations.
- KU4.** types of PPE and their correct usage.
- KU5.** safe handling techniques for tools, equipment, and hazardous materials.
- KU6.** basic fire safety and first-aid procedures.
- KU7.** methods for waste segregation and disposal.
- KU8.** common workplace hazards in telecom field operations.
- KU9.** procedures for sanitisation and disinfection of workplace and tools.
- KU10.** steps for emergency evacuation and incident reporting.

Generic Skills (GS)

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

- GS1.** communicate safety-related information clearly to team members.
- GS2.** plan and organise work in line with safety priorities.
- GS3.** identify opportunities for resource optimisation.
- GS4.** use IT tools to report safety observations or hazards.
- GS5.** follow eco-friendly practices at the workplace.
- GS6.** maintain discipline and self-management in safety compliance.
- GS7.** adapt safety practices to various work environments (indoor, outdoor, hazardous).
- GS8.** collaborate with co-workers to ensure collective safety and hygiene.

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Plan work effectively and optimise resources</i>	9	14	-	4
PC1. prepare a time schedule for tasks to meet given deadlines.	3	4	-	1
PC2. identify materials, tools, and equipment required for the assigned job.	2	4	-	1
PC3. use materials, tools, and equipment efficiently to minimise wastage.	2	3	-	1
PC4. follow organisational practices to optimise energy, water, and other resources.	2	3	-	1
<i>Maintain safety standards</i>	10	17	-	9
PC5. identify potential hazards at the workplace and report them to the supervisor.	2	4	-	1
PC6. use appropriate personal protective equipment (PPE) such as gloves, goggles, helmets, and safety shoes.	2	4	-	3
PC7. follow safe postures and handling techniques while working with tools and hazardous materials.	2	3	-	3
PC8. participate in safety drills, fire safety workshops, and first-aid sessions.	2	3	-	1
PC9. demonstrate safe evacuation procedures in case of an emergency.	2	3	-	1
<i>Maintain hygiene and waste management</i>	11	19	-	7
PC10. keep the workplace clean, organised, and free from obstacles.	2	4	-	1
PC11. follow basic hygiene practices such as handwashing, use of sanitiser, and personal cleanliness.	2	4	-	1
PC12. segregate waste into recyclable and non-recyclable categories using appropriate bins.	2	4	-	1
PC13. dispose of hazardous and non-hazardous waste as per environmental norms.	2	3	-	2

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. report any breaches in organisational hygiene or sanitation guidelines.	3	4	-	2
NOS Total	30	50	-	20

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N6285
NOS Name	Maintain Workplace Safety, Resource Optimization, and Hygiene Standards
Sector	Telecom
Sub-Sector	
Occupation	Network Operation and Maintenance
NSQF Level	4
Credits	0.5
Version	1.0
Next Review Date	NA

TEL/N6287: Operational Skills

Description

This NOS organisational protocols for communication, coordinating with team members, resolving conflicts, and interacting inclusively with customers, colleagues, and persons with disabilities.

Scope

The scope covers the following :

- Communicate effectively with customers, supervisors, and team members to ensure smooth operations.
- Resolve workplace issues and maintain professional relationships.
- Interact sensitively with persons of different genders and persons with disabilities (PwD).

Elements and Performance Criteria

Communicate with customers

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

- PC1.** identify the purpose and audience for each communication
- PC2.** select the appropriate medium (verbal, written, electronic) for communication
- PC3.** prepare clear and concise messages tailored to the audience
- PC4.** review communication materials for accuracy and professionalism
- PC5.** maintain records of important communications for reference

Communicate with customers

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

- PC6.** greet customers politely and introduce self and organisation
- PC7.** listen actively to customer queries and confirm understanding
- PC8.** provide accurate information on services, procedures, and timelines
- PC9.** respond to customer concerns with empathy and professionalism
- PC10.** maintain confidentiality of customer information
- PC11.** follow up with customers to confirm resolution of issues

Coordinate with team members and supervisors

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

- PC12.** share relevant updates and reports with team members in a timely manner
- PC13.** clarify work instructions and seek guidance when needed
- PC14.** participate actively in team meetings and discussions
- PC15.** provide constructive feedback to peers and accept feedback gracefully
- PC16.** resolve minor conflicts at the workplace through discussion and compromise
- PC17.** escalate unresolved issues to supervisors as per protocol

Engage with external stakeholders

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

- PC18.** coordinate with vendors, contractors, and service partners

- PC19.** exchange technical and logistical information clearly and accurately
- PC20.** follow organisational guidelines for contractual or legal communications
- PC21.** represent the organisation professionally during external meetings
- PC22.** maintain transparency in sharing project progress and challenges

Use inclusive and culturally sensitive communication

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

- PC23.** respect cultural, linguistic, and gender diversity in interactions
- PC24.** adapt communication style to accommodate persons with disabilities
- PC25.** avoid discriminatory language and maintain a respectful tone
- PC26.** use simple and clear language when explaining technical matters to non-technical audiences
- PC27.** confirm mutual understanding before closing discussions
- PC28.** encourage open and inclusive participation in group discussions

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** workplace safety and health policies of the organisation.
- KU2.** resource conservation policies and environmental guidelines.
- KU3.** standard reporting procedures for hazards and safety violations.
- KU4.** types of PPE and their correct usage.
- KU5.** safe handling techniques for tools, equipment, and hazardous materials.
- KU6.** basic fire safety and first-aid procedures.
- KU7.** methods for waste segregation and disposal.
- KU8.** common workplace hazards in telecom field operations.
- KU9.** procedures for sanitisation and disinfection of workplace and tools.
- KU10.** steps for emergency evacuation and incident reporting.

Generic Skills (GS)

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

- GS1.** communicate safety-related information clearly to team members.
- GS2.** plan and organise work in line with safety priorities.
- GS3.** identify opportunities for resource optimisation.
- GS4.** use IT tools to report safety observations or hazards.
- GS5.** follow eco-friendly practices at the workplace.
- GS6.** maintain discipline and self-management in safety compliance.
- GS7.** adapt safety practices to various work environments (indoor, outdoor, hazardous).
- GS8.** collaborate with co-workers to ensure collective safety and hygiene.

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Communicate with customers</i>	5	10	-	6
PC1. identify the purpose and audience for each communication	1	2	-	2
PC2. select the appropriate medium (verbal, written, electronic) for communication	1	2	-	-
PC3. prepare clear and concise messages tailored to the audience	1	2	-	2
PC4. review communication materials for accuracy and professionalism	1	2	-	1
PC5. maintain records of important communications for reference	1	2	-	1
<i>Communicate with customers</i>	6	11	-	4
PC6. greet customers politely and introduce self and organisation	1	2	-	1
PC7. listen actively to customer queries and confirm understanding	1	2	-	1
PC8. provide accurate information on services, procedures, and timelines	1	2	-	-
PC9. respond to customer concerns with empathy and professionalism	1	1	-	1
PC10. maintain confidentiality of customer information	1	2	-	1
PC11. follow up with customers to confirm resolution of issues	1	2	-	-
<i>Coordinate with team members and supervisors</i>	6	8	-	1
PC12. share relevant updates and reports with team members in a timely manner	1	2	-	-
PC13. clarify work instructions and seek guidance when needed	1	2	-	-
PC14. participate actively in team meetings and discussions	1	1	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC15. provide constructive feedback to peers and accept feedback gracefully	1	1	-	1
PC16. resolve minor conflicts at the workplace through discussion and compromise	1	1	-	-
PC17. escalate unresolved issues to supervisors as per protocol	1	1	-	-
<i>Engage with external stakeholders</i>	6	9	-	6
PC18. coordinate with vendors, contractors, and service partners	1	2	-	1
PC19. exchange technical and logistical information clearly and accurately	1	2	-	1
PC20. follow organisational guidelines for contractual or legal communications	1	2	-	1
PC21. represent the organisation professionally during external meetings	1	1	-	1
PC22. maintain transparency in sharing project progress and challenges	2	2	-	2
<i>Use inclusive and culturally sensitive communication</i>	7	12	-	3
PC23. respect cultural, linguistic, and gender diversity in interactions	1	2	-	1
PC24. adapt communication style to accommodate persons with disabilities	1	2	-	2
PC25. avoid discriminatory language and maintain a respectful tone	2	2	-	-
PC26. use simple and clear language when explaining technical matters to non-technical audiences	1	2	-	-
PC27. confirm mutual understanding before closing discussions	1	2	-	-
PC28. encourage open and inclusive participation in group discussions	1	2	-	-
NOS Total	30	50	-	20

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N6287
NOS Name	Operational Skills
Sector	Telecom
Sub-Sector	
Occupation	Network Operation and Maintenance
NSQF Level	4
Credits	0.5
Version	1.0
Next Review Date	NA

DGT/VSQ/N0101: Employability Skills (30 Hours)

Description

This unit is about employability skills, Constitutional values, becoming a professional in the 21st Century, digital, financial, and legal literacy, diversity and Inclusion, English and communication skills, customer service, entrepreneurship, and apprenticeship, getting ready for jobs and career development.

Scope

The scope covers the following :

- Introduction to Employability Skills
- Constitutional values - Citizenship
- Becoming a Professional in the 21st Century
- Basic English Skills
- Communication Skills
- Diversity & Inclusion
- Financial and Legal Literacy
- Essential Digital Skills
- Entrepreneurship
- Customer Service
- Getting ready for Apprenticeship & Jobs

Elements and Performance Criteria

Introduction to Employability Skills

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

PC1. understand the significance of employability skills in meeting the job requirements

Constitutional values – Citizenship

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

PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices

Becoming a Professional in the 21st Century

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

PC3. explain 21st Century Skills such as Self-Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc.

Basic English Skills

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

PC4. speak with others using some basic English phrases or sentences

Communication Skills

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

PC5. follow good manners while communicating with others

PC6. work with others in a team

Diversity & Inclusion

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

PC7. communicate and behave appropriately with all genders and PwD

PC8. report any issues related to sexual harassment

Financial and Legal Literacy

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

PC9. use various financial products and services safely and securely

PC10. calculate income, expenses, savings etc.

PC11. approach the concerned authorities for any exploitation as per legal rights and laws

Essential Digital Skills

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

PC12. operate digital devices and use its features and applications securely and safely

PC13. use internet and social media platforms securely and safely

Entrepreneurship

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

PC14. identify and assess opportunities for potential business

PC15. identify sources for arranging money and associated financial and legal challenges

Customer Service

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

PC16. identify different types of customers

PC17. identify customer needs and address them appropriately

PC18. follow appropriate hygiene and grooming standards

Getting ready for apprenticeship & Jobs

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

PC19. create a basic biodata

PC20. search for suitable jobs and apply

PC21. identify and register apprenticeship opportunities as per requirement

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. need for employability skills

KU2. various constitutional and personal values

KU3. different environmentally sustainable practices and their importance

KU4. Twenty first (21st) century skills and their importance

KU5. how to use basic spoken English language

KU6. Do and dont of effective communication

KU7. inclusivity and its importance

KU8. different types of disabilities and appropriate communication and behaviour towards PwD

KU9. different types of financial products and services

KU10. how to compute income and expenses

KU11. importance of maintaining safety and security in financial transactions

- KU12.** different legal rights and laws
- KU13.** how to operate digital devices and applications safely and securely
- KU14.** ways to identify business opportunities
- KU15.** types of customers and their needs
- KU16.** how to apply for a job and prepare for an interview
- KU17.** apprenticeship scheme and the process of registering on apprenticeship portal

Generic Skills (GS)

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

- GS1.** communicate effectively using appropriate language
- GS2.** behave politely and appropriately with all
- GS3.** perform basic calculations
- GS4.** solve problems effectively
- GS5.** be careful and attentive at work
- GS6.** use time effectively
- GS7.** maintain hygiene and sanitisation to avoid infection

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Introduction to Employability Skills</i>	1	1	-	-
PC1. understand the significance of employability skills in meeting the job requirements	-	-	-	-
<i>Constitutional values – Citizenship</i>	1	1	-	-
PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices	-	-	-	-
<i>Becoming a Professional in the 21st Century</i>	1	3	-	-
PC3. explain 21st Century Skills such as Self-Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc.	-	-	-	-
<i>Basic English Skills</i>	2	3	-	-
PC4. speak with others using some basic English phrases or sentences	-	-	-	-
<i>Communication Skills</i>	1	1	-	-
PC5. follow good manners while communicating with others	-	-	-	-
PC6. work with others in a team	-	-	-	-
<i>Diversity & Inclusion</i>	1	1	-	-
PC7. communicate and behave appropriately with all genders and PwD	-	-	-	-
PC8. report any issues related to sexual harassment	-	-	-	-
<i>Financial and Legal Literacy</i>	3	4	-	-
PC9. use various financial products and services safely and securely	-	-	-	-
PC10. calculate income, expenses, savings etc.	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. approach the concerned authorities for any exploitation as per legal rights and laws	-	-	-	-
<i>Essential Digital Skills</i>	4	6	-	-
PC12. operate digital devices and use its features and applications securely and safely	-	-	-	-
PC13. use internet and social media platforms securely and safely	-	-	-	-
<i>Entrepreneurship</i>	3	5	-	-
PC14. identify and assess opportunities for potential business	-	-	-	-
PC15. identify sources for arranging money and associated financial and legal challenges	-	-	-	-
<i>Customer Service</i>	2	2	-	-
PC16. identify different types of customers	-	-	-	-
PC17. identify customer needs and address them appropriately	-	-	-	-
PC18. follow appropriate hygiene and grooming standards	-	-	-	-
<i>Getting ready for apprenticeship & Jobs</i>	1	3	-	-
PC19. create a basic biodata	-	-	-	-
PC20. search for suitable jobs and apply	-	-	-	-
PC21. identify and register apprenticeship opportunities as per requirement	-	-	-	-
NOS Total	20	30	-	-

National Occupational Standards (NOS) Parameters

NOS Code	DGT/VSQ/N0101
NOS Name	Employability Skills (30 Hours)
Sector	Cross Sectoral
Sub-Sector	Professional Skills
Occupation	Employability
NSQF Level	2
Credits	1
Version	1.0
Last Reviewed Date	07/10/2025
Next Review Date	07/10/2028
NSQC Clearance Date	07/10/2025

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

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 the proportion of marks for Theory and Skills Practical for each Element/PC.

2. The assessment for the theory part will be based on a 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 the 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/N6281.Install and Commission Optical Fiber Cables for Broadband Networks	30	50	-	20	100	25
TEL/N6282.Perform Preventive and Corrective Maintenance of Optical Fiber Networks	30	50	-	20	100	25
TEL/N6283.Install and Configure Customer Premises Equipment (CPE) for Broadband Services	30	50	-	20	100	20
TEL/N6284.Troubleshoot and Rectify Broadband Network Faults	30	50	-	20	100	15
TEL/N6285.Maintain Workplace Safety, Resource Optimization, and Hygiene Standards	30	50	-	20	100	5
TEL/N6287.Operational Skills	30	50	-	20	100	5
DGT/VSQ/N0101.Employability Skills (30 Hours)	20	30	-	-	50	5
Total	200	330	-	120	650	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.