Broadband Technician

QP Code: TEL/Q0102

Version: 2.0

NSQF Level: 4

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

Contents

TEL/Q0102: Broadband Technician

Brief Job Description

The individual is responsible for installing, configuring and testing of CPE (modem, routers and switches) for broadband access. The individual also establishes connectivity between CPE and end-user device (CPU, Laptop, tablets, Smart/IP TV etc.) at customer premises and carries out basic trouble-shooting for identifying, localizing and rectifying cable, connectivity and equipment fault in coordination with NOC.

Personal Attributes

An individual on this job must have good communication and interpersonal skills in addition to being a team player, as the job requires coordination with technicians and interaction with customers. The individual must have a technical bend of mind and the ability to work under pressure. The individual should be proficient in regional language, have strong customer service focus, pleasant personality and should be able to apply practical judgement to successfully perform the assigned responsibilities.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. TEL/N0111: Lay cable/system wiring and install equipment at customer premises

2. TEL/N0112: Configure customer premises equipment and establish Broadband connectivity

3. TEL/N0113: Troubleshoot and Rectify Faults

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

5. TEL/N9102: Interact Effectively with Team Members and Customers

Qualification Pack (QP) Parameters

Sector	Telecom
Sub-Sector	Passive Infrastructure
Occupation	Customer Service - Passive Infrastructure
Country	India
NSQF Level	4
Aligned to NCO/ISCO/ISIC Code	NCO-2015/3114.0804
Minimum Educational Qualification & Experience	12th Class

Minimum Level of Education for Training in School	10th Class
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	28/09/2020
Next Review Date	28/09/2025
Deactivation Date	28/09/2025
NSQC Approval Date	
Version	2.0

TEL/N0111: Lay cable/system wiring and install equipment at customer premises

Description

This unit describes the knowledge, understanding and skills required for an individual to lay down the cable/system wiring and install equipment at customer premises.

Scope

The scope covers the following :

- Prepare for wiring and equipment installation
- Undertake wiring and install system hardware
- Clean up worksite and complete documentation

Elements and Performance Criteria

Prepare for wiring and equipment installation

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

PC1. collect work requirements, tools, equipment and materials required for installation

PC2. visit site/customer premises for installation

PC3. analyse installation environment and customer requirements to select the correct type of cables and connectors

PC4. inspect indoor and outdoor cable route to ensure that the route is free of electrical hazards

PC5. verify that the cable running length is within the permissible limit to ensure continuity and designed throughput

PC6. verify that the equipment installation location is near power point and has proper signal coverage

Undertake wiring and install system hardware

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

PC7. install structured wiring (interior and exterior) from PoP to customer premises

PC8. perform cable splicing and crimping wherever required

PC9. perform neat wiring and clipping within customer premises

PC10. use appropriate connectors and ensure that the cables are terminated properly

PC11. perform fault clearance

PC12. test the cable and joints for transmission loss and strength, re-terminate if loss exceeds prescribed limits.

PC13. install equipment such as modem, router and/or switch

PC14. demonstrate and explain the use of equipment to customers

Install/replace UPS and check domestic power supply

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

PC15. perform checks for voltage, current and earthing

PC16. perform checks for battery in case of a defective UPS

PC17. install/replace UPS as per manufacturer's instructions

PC18. route the power supply through the UPS

PC19. calculate equipment load and compare it with UPS rating

Clean up work site and complete documentation

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

PC20. dispose of the installation waste properly and restore work site

PC21. record the details of installation, test results and update plans

PC22. complete all installation documents and get customer signoff

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. process of obtaining cables and equipment from company

KU2. different sizes and colors of wires

KU3. different types of cables (OFC, UTP, STP, Twisted Pair etc.) and connectors (RJ-45, RJ-11 etc.)

KU4. structured cabling norms (pertaining to laying the cables)

KU5. process of crimping, splicing of cables of various sizes and types

KU6. process of cable laying and connectorisation

KU7. process of accurately measuring distances using tapes and other measuring devices

KU8. selection of suitable installation location adhering to cabling norms and signal

KU9. usage of diagnostic equipment

KU10. usage of hand and power tools

KU11. escalation matrix for reporting identified incidents, troubles and/ or emergencies e.g. system failures, fire and power failures

KU12. functioning of customer premise equipment(modem, routers, switches)

KU13. basic computer skills

KU14. risk and impact of not following defined procedures/work instructions issued as per SHE & OSH guidelines

KU15. records to be maintained and implications of non-maintenance of the same

KU16. payment options and procedures

Generic Skills (GS)

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

GS1. read and understand documents and other materials

GS2. interact respectfully with end users/customers

GS3. liaise with customers/vendors

GS4. communicate in the local language (preferable)

GS5. work in coordination with team

GS6. work systematically with attention to detail and adherence to all safety requirements

GS7. maintain proper records as per given format

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Prepare for wiring and equipment installation	**12**	**14**	**-**	**2**
PC1. collect work requirements, tools, equipment and materials required for installation	2	-	-	-
PC2. visit site/customer premises for installation	1	-	-	-
PC3. analyse installation environment and customer requirements to select the correct type of cables and connectors	3	4	-	1
PC4. inspect indoor and outdoor cable route to ensure that the route is free of electrical hazards	2	3	-	1
PC5. verify that the cable running length is within the permissible limit to ensure continuity and designed throughput	2	3	-	-
PC6. verify that the equipment installation location is near power point and has proper signal coverage	2	4	-	-
Undertake wiring and install system hardware	**13**	**21**	**-**	**5**
PC7. install structured wiring (interior and exterior) from PoP to customer premises	2	3	-	1
PC8. perform cable splicing and crimping wherever required	1	1	-	-
PC9. perform neat wiring and clipping within customer premises	1	2	-	1
PC10. use appropriate connectors and ensure that the cables are terminated properly	2	3	-	1
PC11. perform fault clearance	2	3	-	-
PC12. test the cable and joints for transmission loss and strength, re-terminate if loss exceeds prescribed limits.	2	4	-	1
PC13. install equipment such as modem, router and/or switch	2	4	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. demonstrate and explain the use of equipment to customers	1	1	-	-
Install/replace UPS and check domestic power supply	**9**	**9**	**-**	**3**
PC15. perform checks for voltage, current and earthing	1	1	-	-
PC16. perform checks for battery in case of a defective UPS	2	2	-	1
PC17. install/replace UPS as per manufacturer's instructions	2	2	-	1
PC18. route the power supply through the UPS	2	2	-	1
PC19. calculate equipment load and compare it with UPS rating	2	2	-	-
Clean up work site and complete documentation	**6**	**6**	**-**	**-**
PC20. dispose of the installation waste properly and restore work site	2	2	-	-
PC21. record the details of installation, test results and update plans	2	2	-	-
PC22. complete all installation documents and get customer signoff	2	2	-	-
NOS Total	**40**	**50**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N0111
NOS Name	Lay cable/system wiring and install equipment at customer premises
Sector	Telecom
Sub-Sector	Passive Infrastructure
Occupation	Customer Service - Passive Infrastructure
NSQF Level	4
Credits	TBD
Version	2.0
Last Reviewed Date	NA
Next Review Date	NA
NSQC Clearance Date	

TEL/N0112: Configure customer premises equipment and establish Broadband connectivity

Description

This unit describes the knowledge, understanding and skills required for an individual to configure CPE, connect it with service provider gateway and end user device and then record configuration settings and testing steps for the customer.

Scope

The scope covers the following :

- Configure CPE
- Establish broadband connectivity of CPE with service provider gateway and end user device
- Record configuration setting and testing steps for customer

Elements and Performance Criteria

Configure CPE

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

PC1. connect up laptop/PC, smart/ip TV and other customer device to the CPE and establish connectivity

PC2. access Customer Premise Equipment (CPE) settings using default login credentials

PC3. configure CPE as per the base setting (ip, gateway, mask etc.)

Establish broadband connectivity of CPE with service provider gateway and end user device

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

PC4. verify that all cables and connectors are plugged in properly

PC5. ping the service provider gateway

PC6. analyse test results for connectivity and throughput parameters

PC7. configure end user device to establish LAN /WiFi connectivity with CPE

PC8. ping CPE from end user device and analyse response

Record configuration setting and testing steps for customer

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

PC9. record CPE configuration settings

PC10. record end user device configuration settings

PC11. record pinging procedure and expected result parameters

PC12. perform speed test and record the data throughputs and show customer that they are as per committed plan

PC13. brief customer on basic trouble-shooting steps/self help

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. risk and impact of not following defined procedures/work instructions issued as per SHE & OSH guidelines

KU2. command line access and command prompts to execute basic commands

KU3. configuration settings of CPE (wired and wireless) and end user device

KU4. sourcing equipment and base configuration details

KU5. basic concepts of network topologies, broadband network elements, gateways, TCP/IP, IP address, subnet masks, Ethernet address, MAC address, IPv4, IPv6

KU6. basic commands like ping & ipconfig and acceptable round-trip time for IP packets

KU7. connectivity options and methods for CPE & end user device

KU8. customer premise equipment

KU9. features and operating requirements of test equipment

KU10. how to test the speed of connection and to demonstrate same to customer

KU11. Level1 & 2 diagnostics

KU12. in-built diagnostics results for remedial action

KU13. escalation matrix for reporting identified incidents, troubles and/ or emergencies e.g. system failures ,fire and power failures

Generic Skills (GS)

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

GS1. interact courteously with customers

GS2. liaise with customers/vendors

GS3. work in coordination with team

GS4. communicate in the local language (preferable)

GS5. work systematically with attention to detail and adherence to all safety requirements

GS6. maintain proper records as per given format

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Configure CPE	**11**	**12**	**-**	**3**
PC1. connect up laptop/PC, smart/ip TV and other customer device to the CPE and establish connectivity	3	4	-	1
PC2. access Customer Premise Equipment (CPE) settings using default login credentials	4	4	-	1
PC3. configure CPE as per the base setting (ip, gateway, mask etc.)	4	4	-	1
Establish broadband connectivity of CPE with service provider gateway and end user device	**16**	**20**	**-**	**5**
PC4. verify that all cables and connectors are plugged in properly	3	4	-	1
PC5. ping the service provider gateway	2	4	-	1
PC6. analyse test results for connectivity and throughput parameters	4	4	-	1
PC7. configure end user device to establish LAN /WiFi connectivity with CPE	4	4	-	1
PC8. ping CPE from end user device and analyse response	3	4	-	1
Record configuration setting and testing steps for customer	**13**	**18**	**-**	**2**
PC9. record CPE configuration settings	4	4	-	-
PC10. record end user device configuration settings	3	4	-	1
PC11. record pinging procedure and expected result parameters	2	4	-	-
PC12. perform speed test and record the data throughputs and show customer that they are as per committed plan	2	3	-	1
PC13. brief customer on basic trouble-shooting steps/self help	2	3	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
NOS Total	**40**	**50**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N0112
NOS Name	Configure customer premises equipment and establish Broadband connectivity
Sector	Telecom
Sub-Sector	Passive Infrastructure
Occupation	Customer Service - Passive Infrastructure
NSQF Level	4
Credits	TBD
Version	2.0
Last Reviewed Date	NA
Next Review Date	NA
NSQC Clearance Date	

TEL/N0113: Troubleshoot and Rectify Faults

Description

This unit describes the knowledge, understanding and skills required for an individual to troubleshoot and rectify cable, connectors, CPE and broadband service faults and then complete documentation and clean up work site.

Scope

The scope covers the following :

- Troubleshoot and rectify cable, connectors and CPE faults
- Troubleshoot and repair clients' broadband service
- Complete documentation and clean up work site

Elements and Performance Criteria

Troubleshoot and rectify cable, connectors and CPE faults

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

PC1. identify cause of fault, No Service or service degradation

PC2. test cabling using signal level meters /OTDR

PC3. repair and replace faulty connectors / damaged cable

PC4. perform re-conectorization/crimping (of cable pairs with connector) or replace cable, if required

PC5. connect CPE to laptop/CPU/portable device

PC6. access CPE through browser/software application and run diagnostic application

PC7. install CPE access software, if required

PC8. re-configure/reset the CPE to correct settings

Troubleshoot and repair clients' broadband service

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

PC9. troubleshoot/repair problems between customer equipment and the optical node

PC10. troubleshoot problems for signal loss and interference

PC11. take readings at all splitter points and terminated ends to determine the signal loss and continuity

PC12. perform network troubleshooting including ping test, trace routes and speed test

PC13. monitor, repair and record system, drop, and in-house signal leakage

Complete documentation and clean up work site

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

PC14. record steps undertaken for fault localization/isolation

PC15. record repairs/replacements undertaken during fault rectification

PC16. restore any changes made to the worksite during fault repair to the client's satisfaction

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. basic concepts of transmission, broadcasting, switching and operation of telecommunication systems

KU2. functioning of circuit boards and processors

KU3. types of cables and cable pairs

KU4. types of cable connectors

KU5. tools and equipment required for trouble-shooting cable and connector faults

KU6. crimping or soldering expertise

KU7. cable lengths required to achieve designed throughput

KU8. basics of EMI/EMC and preventive approach specific to modem

KU9. usage of test equipment

KU10. commands to reconfigure/rectify fault in CPE

KU11. correct commands and applications to reconfigure end user device

KU12. usage of laptop/portable device to connect to CPE and carry out fault diagnostics and repairs

KU13. how to interpret data on CPE interface accessed through laptop browser

KU14. how to interpret output of trouble shooting equipment/device

KU15. signal loss, attenuation and tiling

KU16. risk and impact of not following defined procedures/work instructions

KU17. escalation matrix for reporting identified incidents, troubles and/ or emergencies e.g. system failures, fire and power failures

Generic Skills (GS)

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

GS1. liaise with customers/vendors

GS2. work in coordination with team

GS3. maintain proper records as per given format

GS4. interact courteously with users/customers

GS5. communicate in the local language (preferable)

GS6. work systematically with attention to detail and adherence to all safety requirements

GS7. maintain proper records as per given format

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Troubleshoot and rectify cable, connectors and CPE faults	**21**	**18**	**-**	**6**
PC1. identify cause of fault, No Service or service degradation	2	2	-	1
PC2. test cabling using signal level meters /OTDR	2	2	-	1
PC3. repair and replace faulty connectors / damaged cable	2	4	-	-
PC4. perform re-conectorization/crimping (of cable pairs with connector) or replace cable, if required	4	2	-	1
PC5. connect CPE to laptop/CPU/portable device	2	2	-	1
PC6. access CPE through browser/software application and run diagnostic application	2	2	-	1
PC7. install CPE access software, if required	4	2	-	-
PC8. re-configure/reset the CPE to correct settings	3	2	-	1
Troubleshoot and repair clients' broadband service	**16**	**22**	**-**	**4**
PC9. troubleshoot/repair problems between customer equipment and the optical node	4	4	-	1
PC10. troubleshoot problems for signal loss and interference	4	4	-	1
PC11. take readings at all splitter points and terminated ends to determine the signal loss and continuity	2	4	-	-
PC12. perform network troubleshooting including ping test, trace routes and speed test	4	6	-	1
PC13. monitor, repair and record system, drop, and in-house signal leakage	2	4	-	1
Complete documentation and clean up work site	**3**	**10**	**-**	**-**
PC14. record steps undertaken for fault localization/isolation	1	6	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC15. record repairs/replacements undertaken during fault rectification	1	2	-	-
PC16. restore any changes made to the worksite during fault repair to the client's satisfaction	1	2	-	-
NOS Total	**40**	**50**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N0113
NOS Name	Troubleshoot and Rectify Faults
Sector	Telecom
Sub-Sector	Passive Infrastructure
Occupation	Customer Service - Passive Infrastructure
NSQF Level	4
Credits	TBD
Version	2.0
Last Reviewed Date	NA
Next Review Date	NA
NSQC Clearance Date	

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

Description

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

Scope

The scope covers the following :

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

Elements and Performance Criteria

Perform work as per quality standards

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

PC1. keep workspace clean and tidy

PC2. perform individual role and responsibilities as per the job role while taking accountability for the work

PC3. record/document tasks completed as per the requirements within specific timelines

PC4. implement schedules to ensure timely completion of tasks

PC5. identify the cause of a problem related to own work and validate it

PC6. analyse problems accurately and communicate different possible solutions to the problem

Maintain safe, healthy and secure working environment

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

PC7. comply with organisation's current health, safety, security policies and procedures

PC8. check for water spills in and around the work space and escalate these to the appropriate authority

PC9. report any identified breaches in health, safety, and security policies and procedures to the designated person

PC10. use safety materials such as goggles, gloves, ear plugs, caps, ESD pins, covers, shoes, etc.

PC11. avoid damage of components due to negligence in ESD procedures or any other loss due to safety negligence

PC12. identify hazards such as illness, accidents, fires or any other natural calamity safely, as per organisation's emergency procedures, within the limits of individual's authority

PC13. participate regularly in fire drills or other safety related workshops organised by the company

PC14. report any hazard outside the individual's authority to the relevant person in line with organisational procedures and warn others who may be affected

PC15. maintain appropriate posture while sitting/standing for long hours

PC16. handle heavy and hazardous materials with care, while maintaining appropriate posture

PC17. sanitize workstation and equipment regularly

PC18. clean hands with soap, alcohol-based sanitizer regularly

PC19. avoid contact with anyone suffering from communicable diseases and take necessary precautions

PC20. take safety precautions while travelling e.g. maintain 1m distance from others, sanitize hands regularly, wear masks, etc.

PC21. report hygiene and sanitation issues to appropriate authority

PC22. follow recommended personal hygiene and sanitation practices, for example, washing/sanitizing hands, covering face with a bent elbow while coughing/sneezing, using PPE, etc.

Conserve material/energy/electricity

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

PC23. optimize usage of material including water in various tasks/activities/processes

PC24. use resources such as water, electricity and others responsibly

PC25. carry out routine cleaning of tools, machine and equipment

PC26. optimize use of electricity/energy in various tasks/activities/processes

PC27. perform periodic checks of the functioning of the equipment/machine and rectify wherever required

PC28. report malfunctioning and lapses in maintenance of equipment

PC29. use electrical equipment and appliances properly

Use effective waste management/recycling practices

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

PC30. identify recyclable, non-recyclable and hazardous waste

PC31. deposit recyclable and reusable material at identified location

PC32. dispose non-recyclable and hazardous waste as per recommended processes

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. strategies pertinent to their field (such as internet searches, asking peers and managers, enrolling for courses and certifications, etc.) that can be used to pursue an advancement in their skills

KU2. key performance indicators for the new tasks

KU3. feedback processes and formats

KU4. timelines and goals as well as their relevance to work allocated

KU5. importance of quality and timely delivery of the product/service

KU6. escalation matrix and its importance, especially in case of emergencies

KU7. ways of time and cost management

KU8. rules/regulation for maintaining health and safety at workplace

KU9. meaning of hazard, different types of health and safety hazards found in the workplace, risks and threats based on the nature of work

KU10. relevant signage, warnings, labels or descriptions on equipment, etc. while carrying out work activities

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

KU12. organisation's procedures for different emergency situations and the importance of following the same

KU13. different methods of cleaning, disinfection, sterilization, and sanitization

KU14. significance of personal hygiene practice including hand hygiene

KU15. path of disease transmission

KU16. correct method of donning and doffing of PPE

KU17. ways of managing resources and material efficiently

KU18. common electrical problems and common practices of conserving electricity

KU19. categorization of waste into dry, wet, recyclable, non-recyclable and items of single-use plastics and use of different colours of dustbins

KU20. organisation's procedures for minimizing waste

KU21. waste management and methods of waste disposal

KU22. common sources of pollution and ways to minimize it

Generic Skills (GS)

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

GS1. improve and modify work practices

GS2. complete tasks efficiently and accurately within stipulated time

GS3. develop skills and mastery of the technologies prevalent in the industry

GS4. write in at least one language and complete written work with attention to detail

GS5. utilize time and manage workload efficiently

GS6. read and comprehend instructions and documents

GS7. accept feedback in a constructive way

GS8. seek clarifications from superior about the job requirement

GS9. read and comprehend statutory documents relevant to safety and hygiene

GS10. refer all anomalies to the concerned persons

GS11. analyze situations and make appropriate decisions

GS12. decide the most suitable course of action for completing the task within resources

Assessment Criteria

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

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

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

National Occupational Standards (NOS) Parameters

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

TEL/N9102: Interact Effectively with Team Members and Customers

Description

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

Scope

The scope covers the following :

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

Elements and Performance Criteria

Interact effectively with superiors

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

PC1. receive work requirements from superiors and customers and interpret them correctly

PC2. inform the supervisor and/or concerned person about any unforeseen disruptions or delays

PC3. participate in decision making by providing facts and figures, giving/accepting constructive suggestions

PC4. rectify errors as per feedback and ensure the errors are not repeated

Interact effectively with colleagues and customers

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

PC5. comply with organisation's policies and procedures for working with team members

PC6. communicate professionally using appropriate mode of communication such as face-to-face, telephonic and written

PC7. respond to queries and seek/provide clarifications if required

PC8. co-ordinate with team to integrate work as per requirements

PC9. resolve conflicts within the team/with customers to achieve smooth workflow

PC10. recognize emotions accurately in self and others to build good relationships

PC11. prioritize team and organization goals above personal goals

Respect differences of gender and ability

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

PC12. maintain a conducive environment for all the genders at the workplace

PC13. encourage appropriate behavior and conduct with people across gender

PC14. assist team members with disability in overcoming any challenges faced in work

PC15. practice appropriate verbal and non-verbal communication while interacting with People with Disability (PwD)

PC16. ensure equal participation of the people across genders in discussions

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. organisation's policies on dress code, workplace timings, workplace behaviour, performance management, incentives, delivery standards, information security, etc.

KU2. organisation's hierarchy and escalation matrix

KU3. importance of establishing good working relationships with colleagues and superiors

KU4. importance of helping colleagues with problems, in order to meet quality and time standards as a team

KU5. different means and methods of communication

KU6. different types of information that colleagues might need and the importance of providing this information in an appropriate manner

KU7. organisation's policies and procedures for working with colleagues and superiors

KU8. importance of understanding consequences of gender biased behaviour

KU9. gender based concepts, issues and legislation

KU10. organisation standards and guidelines to be followed for PwD and knowledge about laws, acts and provisions defined for PwD by the statutory bodies and the right way to use them including various medical conditions associated with PwD

KU11. health and safety requirements at workplace for PwD

KU12. process of recruiting people for a particular job profile w.r.t PwD and gender

KU13. various government/private schemes and benefits available for PwD and information about various institutes working for PwD to enable in providing livelihood opportunities for PwD

Generic Skills (GS)

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

GS1. read and comprehend forms, documents and records

GS2. read and write in English and/or local language

GS3. complete work with attention to detail

GS4. listen effectively and orally communicate information

GS5. work as per customer requirements

GS6. communicate with empathy across genders and PwD

GS7. improve and modify work practices

GS8. maintain positive and effective relationships with colleagues and customers

GS9. evaluate the possible solution(s) to the problem

Assessment Criteria

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

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

National Occupational Standards (NOS) Parameters

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

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/N0111.Lay cable/system wiring and install equipment at customer premises	40	50	-	10	100	20
TEL/N0112.Configure customer premises equipment and establish Broadband connectivity	40	50	0	10	100	20
TEL/N0113.Troubleshoot and Rectify Faults	40	50	-	10	100	20

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
TEL/N9101.Organise Work and Resources as per Health and Safety Standards	30	60	-	10	100	20
TEL/N9102.Interact Effectively with Team Members and Customers	25	65	-	10	100	20
Total	**175**	**275**	**0**	**50**	**500**	**100**

Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training
CPE	Customer Premise Equipment
IPv4	Internet Protocol version 4
IPv6	Internet Protocol version 6
Modem	Modulator/Demodulator
CPU	Central Processing Unit
PoP	Point of Presence
OHS	Organizational Health & Safety
EMI	Electro Magnetic Interference
EMC	Electro Magnetic Compatibility
JB	Junction Box
SHE	Safety Health & Environment
OHS	Operational Health & Safety
OFC	Optical Fiber Cable
STP	Shielded Twisted Pair
UTP	Un-Shielded Twisted Pair
MAC	Media Access Control
IP	Internet Protocol

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.'