

## Qualification Pack



# Broadband Technician

QP Code: TEL/Q0102

Version: 1.0

NSQF Level: 4

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

## Qualification Pack

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## Qualification Pack

### TEL/Q0102: Broadband Technician

#### Brief Job Description

Broadband Technician is responsible for installation, configuration and testing of CPE (modem, routers and switches) for broadband access. He 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 & rectifying cable, connectivity and equipment fault in coordination with NOC.

#### Personal Attributes

This job requires the individual to have good communication skills with a clear diction; regional language proficiency; strong customer service focus; pleasant personality; should be self-motivated; should be able to apply practical judgement to successfully perform the assigned responsibilities and a team player with ability to work under pressure.

#### Applicable National Occupational Standards (NOS)

##### Compulsory NOS:

1. [TEL/N0111: System wiring and equipment installation at customer premises](#)
2. [TEL/N0112: Configuration of equipment and establishing Broadband connectivity](#)
3. [TEL/N0113: Trouble-shoot to localize and rectify faults](#)
4. [TEL/N0114: UPS installation & Domestic Power Supply checks](#)

#### Qualification Pack (QP) Parameters

<b>Sector</b>	Telecom
<b>Sub-Sector</b>	Passive Infrastructure
<b>Occupation</b>	Customer Service
<b>Country</b>	India
<b>NSQF Level</b>	4
<b>Aligned to NCO/ISCO/ISIC Code</b>	NCO-2015/3114.0804

## Qualification Pack

<b>Minimum Educational Qualification &amp; Experience</b>	12th Class OR I.T.I (Electronics)
<b>Minimum Level of Education for Training in School</b>	10th Class
<b>Pre-Requisite License or Training</b>	NA
<b>Minimum Job Entry Age</b>	18 Years
<b>Last Reviewed On</b>	21/06/2018
<b>Next Review Date</b>	31/03/2022
<b>NSQC Approval Date</b>	19/05/2015
<b>Version</b>	1.0
<b>Reference code on NQR</b>	2015/TEL/TSSC/00158
<b>NQR Version</b>	1.0

## Qualification Pack

# TEL/N0111: System wiring and equipment installation at customer premises

## Description

This unit is about cable/system wiring & installation of customer premises equipment. Cables include OFC, UTP/STP and Co-axial.

## Scope

Identify and mark cable route from PoP to customer premise. Identify and mark cable route within customer premise. Identify suitable position for equipment positioning. Undertake wiring, termination and equipment installation

## Elements and Performance Criteria

### *Prepare for wiring and equipment installation*

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

- PC1.** Arrange access to site according to required procedure
- PC2.** Organize tools, equipment and materials for a given work
- PC3.** Match cable type and connectors to installation environment and customer requirements
- PC4.** Check cable length for continuity
- PC5.** Verify cable route is free of electrical hazards and obstructions both outdoors and indoors.
- PC6.** Verify that the cable running length is within the permissible limit to ensure designed throughput
- PC7.** Select suitable location for equipment installation wrt power point and signal coverage.

### *Undertake wiring & Install system hardware*

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

- PC13.** Power-up the system ensuring proper earthing arrangement.
- PC8.** Ensure structured wiring from pop to customer premise job
- PC9.** Ensure neat wiring and clipping within customer premise
- PC10.** Ensure proper cable termination and use of appropriate connectors
- PC11.** Test the cable & joints for transmission loss and strength. re-terminate if loss exceeds prescribed limits.
- PC12.** Install equipment following electrical safety principals and manufacturer's instructions

### *Clean up worksite and completed documentation*

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

- PC14.** Removal and proper dispose of installation waste
- PC15.** Restore worksite to customer's satisfaction
- PC16.** Update plans and records with details of installation and test results
- PC17.** Complete all installation documents and customer signoff

## Knowledge and Understanding (KU)

## Qualification Pack

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.** Escalation matrix for reporting identified incidents, troubles and/ oremergencies e.g. system failures, fire and power failures.
- KU3.** Records to be maintained and implications of non-maintenance of the same
- KU4.** Knowledge of obtaining cables and equipment from company
- KU5.** Knowledge of payment options and procedures.
- KU6.** First aid requirements in case of electrical shocks, cuts, fall and other common injuries.
- KU7.** Cabling types (ofc, utp, stp, twisted pair etc.) and connectors (rj-45, rj- 11 etc.)
- KU8.** Working knowledge of cable laying and connectorisation
- KU9.** Knowledge of customer premise equipment (modem, routers, switches)
- KU10.** Structured cabling norms (pertaining to laying the cables)

## Generic Skills (GS)

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

- GS1.** Fill up appropriate technical forms, activity logs in required format of the company
- GS2.** Maintain proper records as per given format
- GS3.** Read and understand manuals, work orders, health and safety instructions, memos, reports etc.
- GS4.** Courteous to the customers
- GS5.** Liaisioning and coordination skills
- GS6.** Communicate with supervisor and peers
- GS7.** Communicate in the local language (preferable)
- GS8.** Work systematically with required attention to detail and adherence to all safety requirements
- GS9.** Read and comprehend/understand equipment installation manual
- GS10.** Perform fault clearance
- GS11.** Use diagnostic equipment
- GS12.** Use hand and power tools
- GS13.** Select a suitable installation location adhering to cabling norms and signal

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare for wiring and equipment installation</i>	<b>15</b>	<b>25</b>	-	-
<b>PC1.</b> Arrange access to site according to required procedure	5	-	-	-
<b>PC2.</b> Organize tools, equipment and materials for a given work	5	5	-	-
<b>PC3.</b> Match cable type and connectors to installation environment and customer requirements	-	5	-	-
<b>PC4.</b> Check cable length for continuity	-	5	-	-
<b>PC5.</b> Verify cable route is free of electrical hazards and obstructions both outdoors and indoors.	-	5	-	-
<b>PC6.</b> Verify that the cable running length is within the permissible limit to ensure designed throughput	-	5	-	-
<b>PC7.</b> Select suitable location for equipment installation wrt power point and signal coverage.	5	-	-	-
<i>Undertake wiring &amp; Install system hardware</i>	<b>20</b>	<b>20</b>	-	-
<b>PC13.</b> Power-up the system ensuring proper earthing arrangement.	-	5	-	-
<b>PC8.</b> Ensure structured wiring from pop to customer premise jib	10	-	-	-
<b>PC9.</b> Ensure neat wiring and clipping within customer premise	5	-	-	-
<b>PC10.</b> Ensure proper cable termination and use of appropriate connectors	5	-	-	-
<b>PC11.</b> Test the cable & joints for transmission loss and strength. re-terminate if loss exceeds prescribed limits.	-	5	-	-
<b>PC12.</b> Install equipment following electrical safety principals and manufacturer's instructions	-	10	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Clean up worksite and completed documentation</i>	<b>20</b>	-	-	-
<b>PC14.</b> Removal and proper dispose of installation waste	5	-	-	-
<b>PC15.</b> Restore worksite to customer's satisfaction	5	-	-	-
<b>PC16.</b> Update plans and records with details of installation and test results	5	-	-	-
<b>PC17.</b> Complete all installation documents and customer signoff	5	-	-	-
<b>NOS Total</b>	<b>55</b>	<b>45</b>	-	-



## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	TEL/N0111
<b>NOS Name</b>	System wiring and equipment installation at customer premises
<b>Sector</b>	Telecom
<b>Sub-Sector</b>	Passive Infrastructure
<b>Occupation</b>	Customer Services
<b>NSQF Level</b>	4
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	21/06/2018
<b>Next Review Date</b>	31/03/2022
<b>NSQC Clearance Date</b>	19/05/2015

## Qualification Pack

# TEL/N0112: Configuration of equipment and establishing Broadband connectivity

## Description

Involves configuring of CPE (modem, router, switch) and establishing broadband connectivity between equipment and service provider gateway and also between the equipment and end user device.

## Scope

Configuration of CPE (wired and wireless). Establishing connectivity with the service provider gateway. Establishing connectivity between CPE and end-user device.

## Elements and Performance Criteria

### *Configuring CPE*

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

- PC1.** Connect up laptop/pc, smart/ip tv and other appropriate device to the cpe (modem, router, switch) and establish connectivity
- PC2.** Access cpe setting using default login credentials
- PC3.** Configure cpe as per the base setting (ip, gateway, mask etc.)

### *Establishing connectivity with service provider gateway*

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

- PC4.** Ensure all cables/connectors are correctly plugged in
- PC5.** Ping service provider gateway
- PC6.** Analyze test results for connectivity and throughput parameters

### *Establishing connectivity between CPE and end user device*

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

- PC7.** Configure end user device to establish lan connectivity with the cpe
- PC8.** Ping CPE from end user device and analyze 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 setting
- PC11.** Record pinging procedure and expected result parameters
- PC12.** 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.

## Qualification Pack

- KU2.** Escalation matrix for reporting identified incidents, troubles and/ oremergencies e.g. system failures, fire and power failures.
- KU3.** First aid requirements in case of electrical shocks, cuts, fall and other commoninjuries
- KU4.** Knowledge of 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.** Configuration settings at cpe (wired & wireless) & end user device
- KU9.** Command line access and command prompts to execute basic commands
- KU10.** Knowledge of customer premise equipment
- KU11.** Features and operating requirements of test equipment
- KU12.** How to test the speed of connection and to demonstrate same to customer

## Generic Skills (GS)

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

- GS1.** Read and comprehend technical data on networks, configurations and testing
- GS2.** Record system configuration and testing procedure
- GS3.** Read and comprehend organizational policies and procedures
- GS4.** Courteous to the customers
- GS5.** Liaisoning and coordination skills
- GS6.** Communicate with supervisor and peers
- GS7.** Communicate in the local language (preferable)
- GS8.** Configure cpe & end user equipment
- GS9.** Test configuration
- GS10.** Level1 & 2 diagnostics
- GS11.** Interpret configuration screens for entering correct details
- GS12.** Interpret ping results
- GS13.** Interpret ipconfig and other basic command outputs
- GS14.** Interpret in-built diagnostics results for remedial action

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Configuring CPE</i>	-	20	-	-
<b>PC1.</b> Connect up laptop/pc, smart/ip tv and other appropriate device to the cpe (modem, router, switch) and establish connectivity	-	10	-	-
<b>PC2.</b> Access cpe setting using default login credentials	-	5	-	-
<b>PC3.</b> Configure cpe as per the base setting (ip, gateway, mask etc.)	-	5	-	-
<i>Establishing connectivity with service provider gateway</i>	10	10	-	-
<b>PC4.</b> Ensure all cables/connectors are correctly plugged in	-	5	-	-
<b>PC5.</b> Ping service provider gateway	-	5	-	-
<b>PC6.</b> Analyze test results for connectivity and throughput parameters	10	-	-	-
<i>Establishing connectivity between CPE and end user device</i>	10	20	-	-
<b>PC7.</b> Configure end user device to establish lan connectivity with the cpe	5	10	-	-
<b>PC8.</b> Ping CPE from end user device and analyze response	5	10	-	-
<i>Record configuration setting and testing steps for customer</i>	20	10	-	-
<b>PC9.</b> Record CPE configuration settings	10	-	-	-
<b>PC10.</b> Record end user device configuration setting	5	-	-	-
<b>PC11.</b> Record pinging procedure and expected result parameters	5	-	-	-
<b>PC12.</b> Brief customer on basic trouble-shooting steps/self-help	-	10	-	-

## Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
NOS Total	40	60	-	-

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	TEL/N0112
<b>NOS Name</b>	Configuration of equipment and establishing Broadband connectivity
<b>Sector</b>	Telecom
<b>Sub-Sector</b>	Passive Infrastructure
<b>Occupation</b>	Customer Service
<b>NSQF Level</b>	4
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	21/06/2018
<b>Next Review Date</b>	31/03/2022
<b>NSQC Clearance Date</b>	19/05/2015

## Qualification Pack

### TEL/N0113: Trouble-shoot to localize and rectify faults

#### Description

This unit is about trouble shooting to localize and rectify faults

#### Scope

Trouble shoot cable and connector faults. Trouble shoot CPE (modem, router, switch). Trouble shoot configuration and connectivity issues between CPE & service provider gateway and between CPE & end user device. Report and document fault, corrective action and the status

#### Elements and Performance Criteria

##### *Locate and troubleshoot cable & connector fault*

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

- PC1.** Differentiate between types of cables
- PC2.** Identify correct cable pairs
- PC3.** Undertake continuity check and localize fault distance

##### *Troubleshoot CPE fault*

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

- PC4.** Understand relevance of various indicative lights on the cpe
- PC5.** Connect cpe to laptop/cpu/portable device for fault diagnostic
- PC6.** Install cpe access software, if required
- PC7.** Access cpe through browser/software application and run diagnostic application.
- PC8.** Decipher results to localize fault

##### *Rectify the fault with cable, connectors and CPE*

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

- PC9.** Carry out re-connectorization/crimping (of cable pairs with connector) or replace cable, if required
- PC10.** Re-configure the cpe to correct settings
- PC11.** Reset CPE, if required

##### *Completed documentation and clean up worksite*

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

- PC12.** Record steps undertaken for fault localization/isolation
- PC13.** Record changes undertaken for fault rectification
- PC14.** 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.** Risk and impact of not following defined procedures/work instructions

## Qualification Pack

- KU2.** Escalation matrix for reporting identified incidents, troubles and/or emergencies e.g. system failures, fire and power failures
- KU3.** Health and safety guidelines and regulations as per company norms
- KU4.** Knowledge of sourcing equipment and base configuration details
- KU5.** First aid requirements in case of electrical shocks, cuts, fall and other common injuries usage of fire safety equipment
- KU6.** Correct identifications of cables and cable pairs
- KU7.** Knowledge of cable connectors
- KU8.** Crimping or soldering expertise
- KU9.** Knowledge of supported cable lengths to achieve designed throughput
- KU10.** Basic knowledge of EMI/EMC and preventive approach specific to modem
- KU11.** Use of test equipment

## Generic Skills (GS)

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

- GS1.** Read and comprehend technical manual and literature
- GS2.** Maintain proper records as per given format
- GS3.** Read and understand work orders, health and safety instructions, memos, reports etc.
- GS4.** Be courteous to end users/customers
- GS5.** Liaisoning and coordination skills
- GS6.** Communicate with supervisor and peers
- GS7.** Communicate in the local language (preferable)
- GS8.** Operate trouble-shooting equipment for localizing cable & connector faults.
- GS9.** Operate crimping and soldering equipment.
- GS10.** Operate laptop or other specific portable device to connect to CPE and carry out fault diagnostics & repairs.
- GS11.** Interpret data on CPE interface accessed through laptop browser.
- GS12.** Interpret right cable pairs for connection
- GS13.** Interpret output of trouble shooting equipment/device
- GS14.** Utilize appropriate tools for cable fault rectification
- GS15.** Use appropriate commands to reconfigure/rectify fault with CPE.
- GS16.** Assess correct applications and reconfigure in end user device.
- GS17.** Utilize appropriate communication channels to escalate unresolved problems to relevant personnel.



## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Locate and troubleshoot cable &amp; connector fault</i>	<b>5</b>	<b>15</b>	-	-
<b>PC1.</b> Differentiate between types of cables	5	-	-	-
<b>PC2.</b> Identify correct cable pairs	-	5	-	-
<b>PC3.</b> Undertake continuity check and localize fault distance	-	10	-	-
<i>Troubleshoot CPE fault</i>	<b>10</b>	<b>30</b>	-	-
<b>PC4.</b> Understand relevance of various indicative lights on the cpe	5	-	-	-
<b>PC5.</b> Connect cpe to laptop/cpu/portable device for fault diagnostic	-	5	-	-
<b>PC6.</b> Install cpe access software, if required	-	10	-	-
<b>PC7.</b> Access cpe through browser/software application and run diagnostic application.	-	10	-	-
<b>PC8.</b> Decipher results to localize fault	5	5	-	-
<i>Rectify the fault with cable, connectors and CPE</i>	-	<b>20</b>	-	-
<b>PC9.</b> Carry out re-connectorization/crimping (of cable pairs with connector) or replace cable, if required	-	5	-	-
<b>PC10.</b> Re-configure the cpe to correct settings	-	10	-	-
<b>PC11.</b> Reset CPE, if required	-	5	-	-
<i>Completed documentation and clean up worksite</i>	<b>20</b>	-	-	-
<b>PC12.</b> Record steps undertaken for fault localization/isolation	10	-	-	-
<b>PC13.</b> Record changes undertaken for fault rectification	5	-	-	-
<b>PC14.</b> Restore any changes made to the worksite during fault repair to the client's satisfaction	5	-	-	-
<b>NOS Total</b>	<b>35</b>	<b>65</b>	-	-

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	TEL/N0113
<b>NOS Name</b>	Trouble-shoot to localize and rectify faults
<b>Sector</b>	Telecom
<b>Sub-Sector</b>	Passive Infrastructure
<b>Occupation</b>	Customer Service
<b>NSQF Level</b>	4
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	21/06/2018
<b>Next Review Date</b>	31/03/2022
<b>NSQC Clearance Date</b>	19/05/2015

## Qualification Pack

# TEL/N0114: UPS installation & Domestic Power Supply checks

## Description

This unit is about undertaking power supply checks & UPS installation at service provider / customer premise.

## Scope

Use of voltage/current meters. Power Supply checks at 5/15 Amp power socket. Earthing checks. Installation of UPS. Routing of supply to equipment through UPS. Precautions whilst handling live power supply. Familiarity with UPS (battery, charger etc.). Basic maintenance of AC

## Elements and Performance Criteria

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

- PC1.** Carry out voltage, current checks
- PC2.** Carry out earthing checks
- PC3.** Installation of ups
- PC4.** Routing of power supply through ups
- PC5.** Calculate equipment load vis--vis ups rating
- PC6.** Exercise precautions whilst handling power supplies
- PC7.** Ups battery checks & replacement

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** UPS installation norms
- KU2.** Compliance to voltage/current norms
- KU3.** UPS & compatible batteries
- KU4.** The basic process for maintaining AC
- KU5.** UPS & types of UPS
- KU6.** Power rating of UPS
- KU7.** Basic load calculations
- KU8.** Routing of power supply through UPS
- KU9.** Earth & continuity checks for power supply
- KU10.** Use of test equipment for checking/measuring power supply
- KU11.** Checks & replacement of UPS batteries

## Generic Skills (GS)

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

## Qualification Pack

- GS1.** Installation manual for UPS
- GS2.** Read and comprehend basic wiring diagrams
- GS3.** Communicate the issue/fault to the customer
- GS4.** Communicate the issue/fault with complete details to the supervisor
- GS5.** Analyse basic wiring diagrams to facilitate correct installation of UPS
- GS6.** Analyse house-hold circuits for correct installation of devices
- GS7.** Calculate equipment load and suggest ups connection configuration
- GS8.** Plan installation/check activities
- GS9.** Carry out installation with minimum disturbance

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
	<b>50</b>	<b>50</b>	-	-
<b>PC1.</b> Carry out voltage, current checks	5	10	-	-
<b>PC2.</b> Carry out earthing checks	5	10	-	-
<b>PC3.</b> Installation of ups	5	5	-	-
<b>PC4.</b> Routing of power supply through ups	5	10	-	-
<b>PC5.</b> Calculate equipment load vis--vis ups rating	15	-	-	-
<b>PC6.</b> Exercise precautions whilst handling power supplies	10	5	-	-
<b>PC7.</b> Ups battery checks & replacement	5	10	-	-
<b>NOS Total</b>	<b>50</b>	<b>50</b>	-	-

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	TEL/N0114
<b>NOS Name</b>	UPS installation & Domestic Power Supply checks
<b>Sector</b>	Telecom
<b>Sub-Sector</b>	Passive Infrastructure
<b>Occupation</b>	Customer Service
<b>NSQF Level</b>	4
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	21/06/2018
<b>Next Review Date</b>	31/03/2022
<b>NSQC Clearance Date</b>	19/05/2015

## 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.

## 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.System wiring and equipment installation at customer premises	55	45	-	-	100	25
TEL/N0112.Configuration of equipment and establishing Broadband connectivity	40	60	-	-	100	25
TEL/N0113.Trouble-shoot to localize and rectify faults	35	65	-	-	100	25
TEL/N0114.UPS installation & Domestic Power Supply checks	50	50	-	-	100	25
<b>Total</b>	<b>180</b>	<b>220</b>	<b>-</b>	<b>-</b>	<b>400</b>	<b>100</b>

## Qualification Pack

### Acronyms

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



## Qualification Pack

### Glossary

<b>Sector</b>	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.
<b>Sub-sector</b>	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
<b>Occupation</b>	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
<b>Job role</b>	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
<b>Occupational Standards (OS)</b>	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.
<b>Performance Criteria (PC)</b>	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
<b>National Occupational Standards (NOS)</b>	NOS are occupational standards which apply uniquely in the Indian context.
<b>Qualifications Pack (QP)</b>	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.
<b>Unit Code</b>	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
<b>Unit Title</b>	Unit title gives a clear overall statement about what the incumbent should be able to do.
<b>Description</b>	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.
<b>Scope</b>	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.

## Qualification Pack

<b>Knowledge and Understanding (KU)</b>	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.
<b>Organisational Context</b>	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.
<b>Technical Knowledge</b>	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
<b>Core Skills/ Generic Skills (GS)</b>	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.
<b>Electives</b>	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.
<b>Options</b>	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.
<b>Sector</b>	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.
<b>Sub-sector</b>	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components
<b>Occupation</b>	Occupation is a set of job roles, which perform similar/related set of functions in an industry.
<b>Function</b>	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.
<b>Job Role</b>	Job role defines a unique set of functions that together form a unique employment opportunity in an organization.
<b>OS</b>	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.

## Qualification Pack

<b>Performance Criteria</b>	Performance Criteria are statements that together specify the standard of performance required when carrying out a task.
<b>NOS</b>	NOS are Occupational Standards which apply uniquely in the Indian context.
<b>Qualifications Pack Code</b>	Qualifications Pack Code is a unique reference code that identifies a qualifications pack.
<b>Qualifications Pack</b>	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.
<b>Unit Code</b>	Unit Code is a unique identifier for an Occupational Standard, which is denoted by an "N".
<b>Unit Title</b>	Unit Title gives a clear overall statement about what the incumbent should be able to do.
<b>Description</b>	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.
<b>Knowledge and Understanding</b>	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.
<b>Organizational Context</b>	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.
<b>Technical Knowledge</b>	Technical Knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
<b>'Core Skills or Generic Skills</b>	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.'



# Broadband Technician

QP Code: TEL/Q0102

Version: 2.0

NSQF Level: 4

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

## Qualification Pack

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## Qualification Pack

### 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

<b>Sector</b>	Telecom
<b>Sub-Sector</b>	Passive Infrastructure
<b>Occupation</b>	Customer Service - Passive Infrastructure
<b>Country</b>	India
<b>NSQF Level</b>	4
<b>Aligned to NCO/ISCO/ISIC Code</b>	NCO-2015/3114.0804

### Qualification Pack

<b>Minimum Educational Qualification &amp; Experience</b>	12th Class OR 10th Class + I.T.I OR Diploma (Science/Electronics/Telecom/IT and other relevant fields)
<b>Minimum Level of Education for Training in School</b>	10th Class
<b>Pre-Requisite License or Training</b>	NA
<b>Minimum Job Entry Age</b>	17 Years
<b>Last Reviewed On</b>	30/12/2021
<b>Next Review Date</b>	30/12/2025
<b>NSQC Approval Date</b>	30/12/2021
<b>Version</b>	2.0
<b>Reference code on NQR</b>	2021/TEL/TSSC/04899
<b>NQR Version</b>	1.0

## Qualification Pack

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

## Description

This OS 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



## Qualification Pack

- 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



## Qualification Pack

- GS6.** work systematically with attention to detail and adherence to all safety requirements
- GS7.** maintain proper records as per given format

## Qualification Pack

### Assessment Criteria

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

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC13.</b> install equipment such as modem, router and/or switch	2	4	-	1
<b>PC14.</b> demonstrate and explain the use of equipment to customers	1	1	-	-
<i>Install/replace UPS and check domestic power supply</i>	<b>9</b>	<b>9</b>	-	<b>3</b>
<b>PC15.</b> perform checks for voltage, current and earthing	1	1	-	-
<b>PC16.</b> perform checks for battery in case of a defective UPS	2	2	-	1
<b>PC17.</b> install/replace UPS as per manufacturer's instructions	2	2	-	1
<b>PC18.</b> route the power supply through the UPS	2	2	-	1
<b>PC19.</b> calculate equipment load and compare it with UPS rating	2	2	-	-
<i>Clean up work site and complete documentation</i>	<b>6</b>	<b>6</b>	-	-
<b>PC20.</b> dispose of the installation waste properly and restore work site	2	2	-	-
<b>PC21.</b> record the details of installation, test results and update plans	2	2	-	-
<b>PC22.</b> complete all installation documents and get customer signoff	2	2	-	-
<b>NOS Total</b>	<b>40</b>	<b>50</b>	-	<b>10</b>

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	TEL/N0111
<b>NOS Name</b>	Lay cable/system wiring and install equipment at customer premises
<b>Sector</b>	Telecom
<b>Sub-Sector</b>	Passive Infrastructure
<b>Occupation</b>	Customer Service - Passive Infrastructure
<b>NSQF Level</b>	4
<b>Credits</b>	TBD
<b>Version</b>	2.0
<b>Last Reviewed Date</b>	30/12/2021
<b>Next Review Date</b>	30/12/2025
<b>NSQC Clearance Date</b>	30/12/2021

## Qualification Pack

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

## Description

This OS 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:

## Qualification Pack

- 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

## Qualification Pack

### Assessment Criteria

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



## Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>NOS Total</b>	<b>40</b>	<b>50</b>	<b>-</b>	<b>10</b>

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	TEL/N0112
<b>NOS Name</b>	Configure customer premises equipment and establish Broadband connectivity
<b>Sector</b>	Telecom
<b>Sub-Sector</b>	Passive Infrastructure
<b>Occupation</b>	Customer Service - Passive Infrastructure
<b>NSQF Level</b>	4
<b>Credits</b>	TBD
<b>Version</b>	2.0
<b>Last Reviewed Date</b>	30/12/2021
<b>Next Review Date</b>	30/12/2025
<b>NSQC Clearance Date</b>	30/12/2021

## Qualification Pack

### TEL/N0113: Troubleshoot and Rectify Faults

#### Description

This OS 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

## Qualification Pack

### 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

## Qualification Pack

### Assessment Criteria

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

### Qualification Pack

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

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	TEL/N0113
<b>NOS Name</b>	Troubleshoot and Rectify Faults
<b>Sector</b>	Telecom
<b>Sub-Sector</b>	Passive Infrastructure
<b>Occupation</b>	Customer Service - Passive Infrastructure
<b>NSQF Level</b>	4
<b>Credits</b>	TBD
<b>Version</b>	2.0
<b>Last Reviewed Date</b>	30/12/2021
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<b>NSQC Clearance Date</b>	30/12/2021

## Qualification Pack

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

## Description

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

## Scope

The scope covers the following :

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

## Elements and Performance Criteria

### *Perform work as per quality standards*

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

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

### *Maintain safe, healthy and secure working environment*

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

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



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- 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

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- 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

## Qualification Pack

### Assessment Criteria

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

### Qualification Pack

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

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC26.</b> optimize use of electricity/energy in various tasks/activities/processes	1	3	-	1
<b>PC27.</b> perform periodic checks of the functioning of the equipment/machine and rectify wherever required	1	3	-	1
<b>PC28.</b> report malfunctioning and lapses in maintenance of equipment	1	2	-	-
<b>PC29.</b> use electrical equipment and appliances properly	1	2	-	-
<i>Use effective waste management/recycling practices</i>	<b>3</b>	<b>8</b>	-	<b>1</b>
<b>PC30.</b> identify recyclable, non-recyclable and hazardous waste	1	2	-	1
<b>PC31.</b> deposit recyclable and reusable material at identified location	1	3	-	-
<b>PC32.</b> dispose non-recyclable and hazardous waste as per recommended processes	1	3	-	-
<b>NOS Total</b>	<b>30</b>	<b>60</b>	-	<b>10</b>

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	TEL/N9101
<b>NOS Name</b>	Organise Work and Resources as per Health and Safety Standards
<b>Sector</b>	Telecom
<b>Sub-Sector</b>	Generic
<b>Occupation</b>	Generic
<b>NSQF Level</b>	4
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	31/03/2022
<b>Next Review Date</b>	31/03/2026
<b>NSQC Clearance Date</b>	31/03/2022

## Qualification Pack

# 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)

## Qualification Pack

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



## Qualification Pack

### Assessment Criteria

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

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC13.</b> encourage appropriate behavior and conduct with people across gender	2	5	-	1
<b>PC14.</b> assist team members with disability in overcoming any challenges faced in work	3	4	-	1
<b>PC15.</b> practice appropriate verbal and non-verbal communication while interacting with People with Disability (PWD)	2	4	-	1
<b>PC16.</b> ensure equal participation of the people across genders in discussions	2	6	-	-
<b>NOS Total</b>	<b>25</b>	<b>65</b>	<b>-</b>	<b>10</b>

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	TEL/N9102
<b>NOS Name</b>	Interact Effectively with Team Members and Customers
<b>Sector</b>	Telecom
<b>Sub-Sector</b>	Generic
<b>Occupation</b>	Generic
<b>NSQF Level</b>	4
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	31/03/2022
<b>Next Review Date</b>	31/03/2026
<b>NSQC Clearance Date</b>	31/03/2022

## Assessment Guidelines and Assessment Weightage

### Assessment Guidelines

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

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### 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	0	10	100	20
TEL/N0112.Configure customer premises equipment and establish Broadband connectivity	40	50	-	10	100	20
TEL/N0113.Troubleshoot and Rectify Faults	40	50	0	10	100	20
TEL/N9101.Organise Work and Resources as per Health and Safety Standards	30	60	-	10	100	20
TEL/N9102.Interact Effectively with Team Members and Customers	25	65	-	10	100	20
<b>Total</b>	<b>175</b>	<b>275</b>	<b>-</b>	<b>50</b>	<b>500</b>	<b>100</b>

## Qualification Pack

### Acronyms

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

## Qualification Pack

### Glossary

<b>Sector</b>	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.
<b>Sub-sector</b>	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
<b>Occupation</b>	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
<b>Job role</b>	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
<b>Occupational Standards (OS)</b>	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.
<b>Performance Criteria (PC)</b>	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
<b>National Occupational Standards (NOS)</b>	NOS are occupational standards which apply uniquely in the Indian context.
<b>Qualifications Pack (QP)</b>	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.
<b>Unit Code</b>	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
<b>Unit Title</b>	Unit title gives a clear overall statement about what the incumbent should be able to do.
<b>Description</b>	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.
<b>Scope</b>	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.

## Qualification Pack

<b>Knowledge and Understanding (KU)</b>	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.
<b>Organisational Context</b>	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.
<b>Technical Knowledge</b>	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
<b>Core Skills/ Generic Skills (GS)</b>	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.
<b>Electives</b>	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.
<b>Options</b>	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.
<b>Sector</b>	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.
<b>Sub-sector</b>	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components
<b>Occupation</b>	Occupation is a set of job roles, which perform similar/related set of functions in an industry.
<b>Function</b>	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.
<b>Job Role</b>	Job role defines a unique set of functions that together form a unique employment opportunity in an organization.
<b>OS</b>	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.

## Qualification Pack

<b>Performance Criteria</b>	Performance Criteria are statements that together specify the standard of performance required when carrying out a task.
<b>NOS</b>	NOS are Occupational Standards which apply uniquely in the Indian context.
<b>Qualifications Pack Code</b>	Qualifications Pack Code is a unique reference code that identifies a qualifications pack.
<b>Qualifications Pack</b>	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.
<b>Unit Code</b>	Unit Code is a unique identifier for an Occupational Standard, which is denoted by an "N".
<b>Unit Title</b>	Unit Title gives a clear overall statement about what the incumbent should be able to do.
<b>Description</b>	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.
<b>Knowledge and Understanding</b>	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.
<b>Organizational Context</b>	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.
<b>Technical Knowledge</b>	Technical Knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
<b>'Core Skills or Generic Skills</b>	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.'