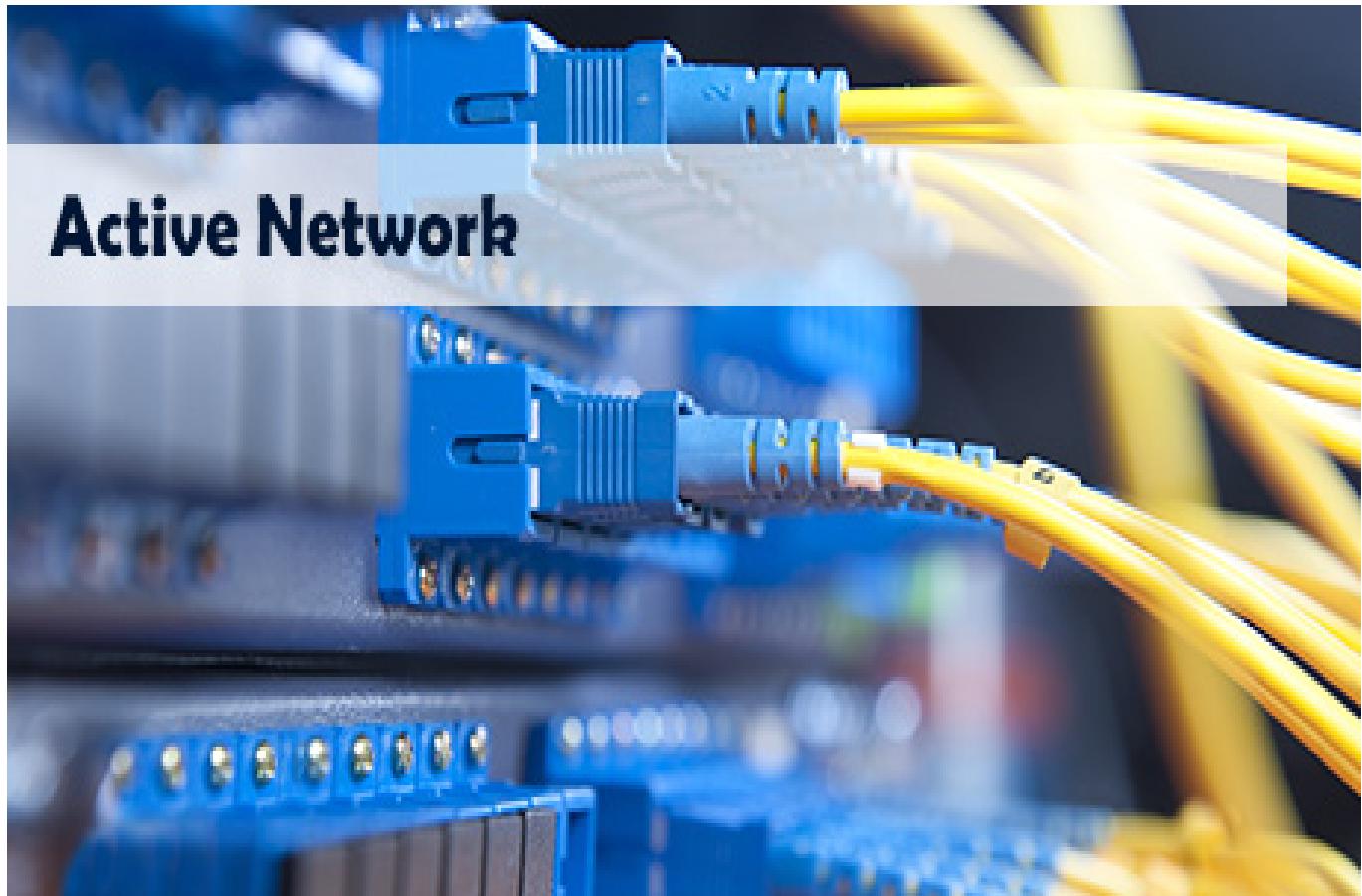


## Qualification Pack



# Jr. Technician - Last Mile Active Network

QP Code: TEL/Q6101

Version: 1.0

NSQF Level: 3

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

## Qualification Pack

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## TEL/Q6101: Jr. Technician - Last Mile Active Network

### Brief Job Description

An individual is responsible for installing network devices such as network switch, router, and LAN and WAN devices. The individual is also responsible for carrying out preventive and corrective maintenance of the network devices.

### Personal Attributes

The individual must have an aptitude for details along with analytical and problem-solving skills. The person should be able to work in co-ordination with others. The individual should be able to communicate appropriately, both verbally and in writing.

### Applicable National Occupational Standards (NOS)

#### Compulsory NOS:

1. [TEL/N6109: Install the Local Area Network \(LAN\) and Wide Area Network \(WAN\) devices](#)
2. [TEL/N6110: Set up and Configuration of Network Switch and Router](#)
3. [TEL/N6111: Carry out Maintenance of Network Devices](#)
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>	Network Managed Services
<b>Occupation</b>	Network (Active Components Installation)
<b>Country</b>	India
<b>NSQF Level</b>	3
<b>Aligned to NCO/ISCO/ISIC Code</b>	NCO-2015/NIL

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<b>Minimum Educational Qualification &amp; Experience</b>	10th Class OR 8th Class (+ ITI (2 years in Electronics/Telecom/IT and other relevant fields)) OR 8th Class (and pursuing continuous regular schooling)
<b>Minimum Level of Education for Training in School</b>	
<b>Pre-Requisite License or Training</b>	NA
<b>Minimum Job Entry Age</b>	15 Years
<b>Last Reviewed On</b>	NA
<b>Next Review Date</b>	30/06/2025
<b>NSQC Approval Date</b>	30/06/2022
<b>Version</b>	1.0
<b>Reference code on NQR</b>	2022/TEL/TSSC/06066
<b>NQR Version</b>	1.0

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# TEL/N6109: Install the Local Area Network (LAN) and Wide Area Network (WAN) devices

### Description

This OS unit is about installing the Local Area Network (LAN) and Wide Area Network (WAN) devices.

### Scope

The scope covers the following :

- Prepare for the installation
- Install the LAN and WAN Devices

### Elements and Performance Criteria

#### *Prepare for the installation*

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

- PC1.** coordinate with the supervisor or relevant personnel to arrange the LAN and WAN devices and accessories for installation
- PC2.** inspect the LAN and WAN network devices and accessories to ensure they have no damages and malfunctioning
- PC3.** plan the network connections between the network devices
- PC4.** install and terminate ethernet and fibre cables and carry out testing, as per requirement

#### *Install the LAN and WAN network devices*

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

- PC5.** design the network through Ethernet cables between network devices or by making wireless connections, as applicable
- PC6.** carry out the installation of LAN and WAN network devices and accessories as per the manufacturers' instructions
- PC7.** select the networking device, such as switch, router or hub, based on the requirements of the network, ensuring the networking device has enough ports to connect all devices within the network
- PC8.** configure the LAN and WAN ports to provide a network connection to all the network devices
- PC9.** carry out testing of LAN and WAN network devices to identify performance issues
- PC10.** carry out appropriate troubleshooting for the network devices and co-ordinate with the manufacturer for the resolution of manufacturing faults

### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the importance of inspecting the LAN and WAN network devices and accessories before installation to ensure they have no damages and malfunctioning

## **Qualification Pack**

- KU2.** the importance and process of planning the network connections between the network devices
- KU3.** the process of installing and terminating ethernet and fibre cables and carrying out their testing
- KU4.** the process of designing the network through ethernet cables between network devices or by making wireless connections
- KU5.** the process of installing LAN and WAN network devices and accessories
- KU6.** the process of configuring LAN and WAN ports to provide a network connection to all the network devices
- KU7.** the process of testing LAN and WAN network devices
- KU8.** the appropriate troubleshooting to be carried out for network devices

### **Generic Skills (GS)**

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

- GS1.** maintain work related records
- GS2.** read the relevant guides and literature to get the latest information about the field of work
- GS3.** communicate clearly and politely
- GS4.** listen attentively to understand the instructions provided by the supervisors
- GS5.** plan and prioritize tasks to ensure timely completion
- GS6.** identify appropriate solutions to work related issues
- GS7.** take quick decision in case of an emergency/accident

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### Assessment Criteria

<b>Assessment Criteria for Outcomes</b>	<b>Theory Marks</b>	<b>Practical Marks</b>	<b>Project Marks</b>	<b>Viva Marks</b>
<i>Prepare for the installation</i>	<b>11</b>	<b>22</b>	-	<b>4</b>
<b>PC1.</b> coordinate with the supervisor or relevant personnel to arrange the LAN and WAN devices and accessories for installation	3	6	-	1
<b>PC2.</b> inspect the LAN and WAN network devices and accessories to ensure they have no damages and malfunctioning	3	6	-	1
<b>PC3.</b> plan the network connections between the network devices	3	5	-	1
<b>PC4.</b> install and terminate ethernet and fibre cables and carry out testing, as per requirement	2	5	-	1
<i>Install the LAN and WAN network devices</i>	<b>19</b>	<b>38</b>	-	<b>6</b>
<b>PC5.</b> design the network through Ethernet cables between network devices or by making wireless connections, as applicable	3	4	-	1
<b>PC6.</b> carry out the installation of LAN and WAN network devices and accessories as per the manufacturers' instructions	3	6	-	1
<b>PC7.</b> select the networking device, such as switch, router or hub, based on the requirements of the network, ensuring the networking device has enough ports to connect all devices within the network	4	8	-	1
<b>PC8.</b> configure the LAN and WAN ports to provide a network connection to all the network devices	2	7	-	1
<b>PC9.</b> carry out testing of LAN and WAN network devices to identify performance issues	3	6	-	1
<b>PC10.</b> carry out appropriate troubleshooting for the network devices and co-ordinate with the manufacturer for the resolution of manufacturing faults	4	7	-	1
<b>NOS Total</b>	<b>30</b>	<b>60</b>	-	<b>10</b>

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### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	TEL/N6109
<b>NOS Name</b>	Install the Local Area Network (LAN) and Wide Area Network (WAN) devices
<b>Sector</b>	Telecom
<b>Sub-Sector</b>	Network Managed Services
<b>Occupation</b>	Network (Active Components Installation)
<b>NSQF Level</b>	3
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	30/06/2025
<b>NSQC Clearance Date</b>	30/06/2022

## TEL/N6110: Set up and Configuration of Network Switch and Router

### Description

This OS unit is about setting up and configuring network switch and router for connecting multiple devices securely on a network.

### Scope

The scope covers the following :

- Set up and configure the network switch
- Set up and configure the router

### Elements and Performance Criteria

#### *Set up and configure the network switch*

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

- PC1.** check network switch and its connected cables for any damages and coordinate with the relevant personnel for the replacement of faulty hardware, if any
- PC2.** test the network switch by turning it on and verify that all the indicator lights are in working order
- PC3.** connect the network switch with a computer/laptop and install the relevant software tool for operating and controlling the network switch
- PC4.** check the output of the relevant commands such as Virtual LAN (VLAN) brief, VLAN Trunking Protocol (VTP) status, etc.
- PC5.** set up the host name for the switch following the organization naming protocol
- PC6.** assign an IP address as per IP Schema on the management VLAN, ensuring the switch has a set hostname and domain name
- PC7.** check the Virtual Trunking Protocol (VTP) revision number and update it following the manufacturer instructions as required, before adding the switch to the network
- PC8.** configure the access and trunk ports on the network switch
- PC9.** generate RSA keys to be used during the Secure Shell (SSH) process, using the appropriate crypto commands
- PC10.** check the SSH access is enabled and allows network access from a remote computer

#### *Set up and configure the router*

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

- PC11.** ensure the availability of an active internet connection for setting up the router
- PC12.** set up the router antennas and extend them before beginning the setup process
- PC13.** select an appropriate spot for placing the router for easy access and maintenance
- PC14.** connect the router to the ISP gateway's ethernet port using CAT5e or CAT6 cable, as required
- PC15.** install a mesh network with a router to place multiple Wi-Fi transmitters in a single network, as required

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- PC16.** ensure Ethernet cable is plugged in appropriately into the router's Wide Area Network (WAN) port
- PC17.** check the router's LED lights to ensure a successful internet connection or test the connection, as required
- PC18.** configure the wireless router gateway and connect it to the router, following the manufacturer's instructions
- PC19.** use the appropriate mobile applications or web dashboard to set up the username and password as per the manufacturer instructions
- PC20.** check for router firmware or security updates and install the available updates to ensure maximum network security
- PC21.** use the relevant auto-configuration tools to manage IP addresses and automatic assigning of IP addresses to devices on the network with the Dynamic Host Configuration Protocol (DHCP)

### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** network services and networks such as Transmission Control Protocol (TCP)/Internet Protocol (IP), Open Shortest Path First (OSPF), and Enhanced Interior Gateway Routing Protocol (EIGRP)
- KU2.** functioning of networking systems such as Local Area Network (LAN), firewalls, and routers
- KU3.** the benefits and working of network domains
- KU4.** the functioning and uses of server hardware, and network physical and virtual appliances
- KU5.** the process of testing the network switch to ensure its correct functioning
- KU6.** the process of checking the output of relevant commands, such as VLAN brief, VTP status, etc.
- KU7.** the protocol for setting up the hostname for the network switch
- KU8.** the importance of checking the VTP revision number and updating it before adding the switch to the network, as required
- KU9.** the process of configuring the access and trunk ports on the network switch
- KU10.** the process of generating the RSA keys to be used during the SSH process
- KU11.** the importance of ensuring the SSH access is enabled during network switch configuration
- KU12.** the requirement of installing a mesh network with a router to place multiple Wi-Fi transmitters in a single network
- KU13.** the importance of ensuring correct and secure cable connections during the process of setting up and configuring the router
- KU14.** the process of configuring the wireless router gateway and connecting it to the router
- KU15.** the use of the appropriate mobile app or web dashboard for setting up the username and password for the router
- KU16.** the importance and process of installing the latest firmware or security updates on the router to ensure maximum network security
- KU17.** the benefit of using the relevant auto-configuration tools for efficient IP address management

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### Generic Skills (GS)

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

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

## Qualification Pack

### Assessment Criteria

<b>Assessment Criteria for Outcomes</b>	<b>Theory Marks</b>	<b>Practical Marks</b>	<b>Project Marks</b>	<b>Viva Marks</b>
<i>Set up and configure the network switch</i>	<b>10</b>	<b>26</b>	-	<b>5</b>
<b>PC1.</b> check network switch and its connected cables for any damages and coordinate with the relevant personnel for the replacement of faulty hardware, if any	1	3	-	1
<b>PC2.</b> test the network switch by turning it on and verify that all the indicator lights are in working order	1	3	-	-
<b>PC3.</b> connect the network switch with a computer/laptop and install the relevant software tool for operating and controlling the network switch	1	4	-	-
<b>PC4.</b> check the output of the relevant commands such as Virtual LAN (VLAN) brief, VLAN Trunking Protocol (VTP) status, etc.	1	3	-	1
<b>PC5.</b> set up the host name for the switch following the organization naming protocol	1	2	-	-
<b>PC6.</b> assign an IP address as per IP Schema on the management VLAN, ensuring the switch has a set hostname and domain name	1	2	-	1
<b>PC7.</b> check the Virtual Trunking Protocol (VTP) revision number and update it following the manufacturer instructions as required, before adding the switch to the network	1	2	-	-
<b>PC8.</b> configure the access and trunk ports on the network switch	1	2	-	1
<b>PC9.</b> generate RSA keys to be used during the Secure Shell (SSH) process, using the appropriate crypto commands	1	2	-	-
<b>PC10.</b> check the SSH access is enabled and allows network access from a remote computer	1	3	-	1
<i>Set up and configure the router</i>	<b>15</b>	<b>39</b>	-	<b>5</b>

### Qualification Pack

<b>Assessment Criteria for Outcomes</b>	<b>Theory Marks</b>	<b>Practical Marks</b>	<b>Project Marks</b>	<b>Viva Marks</b>
<b>PC11.</b> ensure the availability of an active internet connection for setting up the router	1	3	-	1
<b>PC12.</b> set up the router antennas and extend them before beginning the setup process	1	2	-	-
<b>PC13.</b> select an appropriate spot for placing the router for easy access and maintenance	1	3	-	1
<b>PC14.</b> connect the router to the ISP gateway's ethernet port using CAT5e or CAT6 cable, as required	1	4	-	-
<b>PC15.</b> install a mesh network with a router to place multiple Wi-Fi transmitters in a single network, as required	1	4	-	1
<b>PC16.</b> ensure Ethernet cable is plugged in appropriately into the router's Wide Area Network (WAN) port	1	4	-	-
<b>PC17.</b> check the router's LED lights to ensure a successful internet connection or test the connection, as required	2	3	-	1
<b>PC18.</b> configure the wireless router gateway and connect it to the router, following the manufacturer's instructions	1	4	-	-
<b>PC19.</b> use the appropriate mobile applications or web dashboard to set up the username and password as per the manufacturer instructions	2	4	-	-
<b>PC20.</b> check for router firmware or security updates and install the available updates to ensure maximum network security	2	3	-	1
<b>PC21.</b> use the relevant auto-configuration tools to manage IP addresses and automatic assigning of IP addresses to devices on the network with the Dynamic Host Configuration Protocol (DHCP)	2	5	-	-
<b>NOS Total</b>	<b>25</b>	<b>65</b>	<b>-</b>	<b>10</b>

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#### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	TEL/N6110
<b>NOS Name</b>	Set up and Configuration of Network Switch and Router
<b>Sector</b>	Telecom
<b>Sub-Sector</b>	Network Managed Services
<b>Occupation</b>	Network (Active Components Installation)
<b>NSQF Level</b>	3
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	30/06/2025
<b>NSQC Clearance Date</b>	30/06/2022

## TEL/N6111: Carry out Maintenance of Network Devices

### Description

This OS unit is about carrying out corrective and preventive maintenance of network devices including LAN and WAN network devices.

### Scope

The scope covers the following :

- Carry out preventive maintenance
- Carry out corrective maintenance

### Elements and Performance Criteria

#### *Carry out preventive maintenance*

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

- PC1.** develop a scheduled maintenance plan to prevent network downtime and equipment failures through regular maintenance
- PC2.** use the predictive network analytics platform for the identification and resolution of LAN/WAN issues
- PC3.** monitor the LAN and WAN network devices and infrastructure, such as switches, routers, wireless LAN controllers, wireless access points, hubs, terminating devices for optimal performance
- PC4.** identify performance issues with LAN and WAN network devices and carry out appropriate troubleshooting
- PC5.** maintain the cleanliness of network devices, servers, and computers, protecting them from dust
- PC6.** check the condition of network devices, servers, and computers to ensure they are not damaged and are functioning appropriately
- PC7.** detect unusual noises and malfunctioning network equipment, and carry out appropriate troubleshooting
- PC8.** ensure appropriate cooling arrangement including regular changing of air filters to prevent overheating of network devices and server
- PC9.** ensure cables are labelled correctly and replace the worn or unreadable labels
- PC10.** check that cable supports are properly installed, and no attachment points are loose
- PC11.** maintain the cables in good condition for optimal network performance, and replace the worn-out or damaged cables
- PC12.** analyse and diagnose network problems for a variety of users
- PC13.** assist in implementing approved network changes and upgrades to ensure optimal network performance

#### *Carry out corrective maintenance*

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

- PC14.** collect all the relevant information about the network issue being experienced

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- PC15.** analyse the error message/ problem and determine the cause of the issue, whether it is a hardware, software, or connectivity issue
- PC16.** identify whether recent commissioning/ decommissioning of network devices or changes in software is the cause of the issue
- PC17.** check that all the network cables are connected securely at the correct ports, and make the appropriate correction, as required
- PC18.** perform network device reboot and repair or re-enable the network connection
- PC19.** ping the default gateway, if required
- PC20.** identify appropriate corrective solutions to be applied to network hardware or software to prevent any future issues
- PC21.** assist other groups in troubleshooting problems that require packet analysis or equipment performance review
- PC22.** co-ordinate with the network administrator or device manufacturer for any complex or manufacturing faults
- PC23.** create, publish, and maintain up to date and accurate network maintenance documentation

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the importance of following a scheduled maintenance plan to prevent network downtime and equipment failures
- KU2.** the use of predictive network analytics platform for the identification and resolution of LAN/WAN issues
- KU3.** the importance of monitoring the LAN and WAN network devices and infrastructure for optimal performance
- KU4.** the process of carrying out troubleshooting for performance issues with LAN and WAN network devices
- KU5.** the importance of protecting the network devices, servers, and computers from dust
- KU6.** the importance of checking the condition of network devices, servers, and computers regularly
- KU7.** the process of detecting unusual noises and malfunctioning of network equipment, and carry out appropriate troubleshooting
- KU8.** the importance of ensuring appropriate cooling arrangement to prevent overheating of network devices and server
- KU9.** the importance of labelling different types of network cables correctly and maintaining them in good condition for optimal network performance
- KU10.** the importance of implementing approved network changes and upgrades to ensure optimal network performance
- KU11.** the importance and process of analysing the error message/ problem to determine the cause of the issue
- KU12.** the appropriate troubleshooting to be carried out for common issues with network devices
- KU13.** the importance of maintaining up to date and accurate network maintenance documentation

## **Generic Skills (GS)**

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

- GS1.** maintain work related records
- GS2.** read the relevant guides and literature to get the latest information about the field of work
- GS3.** communicate clearly and politely
- GS4.** listen attentively to understand the instructions by the supervisor
- GS5.** plan and prioritise tasks to ensure timely completion
- GS6.** identify appropriate solutions to work related issues
- GS7.** take quick decision in case of an emergency/accident

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### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Carry out preventive maintenance</i>	<b>14</b>	<b>38</b>	-	<b>6</b>
<b>PC1.</b> develop a scheduled maintenance plan to prevent network downtime and equipment failures through regular maintenance	1	3	-	-
<b>PC2.</b> use the predictive network analytics platform for the identification and resolution of LAN/WAN issues	1	4	-	1
<b>PC3.</b> monitor the LAN and WAN network devices and infrastructure, such as switches, routers, wireless LAN controllers, wireless access points, hubs, terminating devices for optimal performance	1	4	-	-
<b>PC4.</b> identify performance issues with LAN and WAN network devices and carry out appropriate troubleshooting	1	3	-	1
<b>PC5.</b> maintain the cleanliness of network devices, servers, and computers, protecting them from dust	1	2	-	-
<b>PC6.</b> check the condition of network devices, servers, and computers to ensure they are not damaged and are functioning appropriately	2	3	-	-
<b>PC7.</b> detect unusual noises and malfunctioning network equipment, and carry out appropriate troubleshooting	1	2	-	1
<b>PC8.</b> ensure appropriate cooling arrangement including regular changing of air filters to prevent overheating of network devices and server	1	3	-	-
<b>PC9.</b> ensure cables are labelled correctly and replace the worn or unreadable labels	1	2	-	1
<b>PC10.</b> check that cable supports are properly installed, and no attachment points are loose	1	3	-	-
<b>PC11.</b> maintain the cables in good condition for optimal network performance, and replace the worn-out or damaged cables	1	3	-	1

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<b>Assessment Criteria for Outcomes</b>	<b>Theory Marks</b>	<b>Practical Marks</b>	<b>Project Marks</b>	<b>Viva Marks</b>
<b>PC12.</b> analyse and diagnose network problems for a variety of users	1	4	-	-
<b>PC13.</b> assist in implementing approved network changes and upgrades to ensure optimal network performance	1	2	-	1
<i>Carry out corrective maintenance</i>	<b>11</b>	<b>27</b>	-	<b>4</b>
<b>PC14.</b> collect all the relevant information about the network issue being experienced	1	2	-	1
<b>PC15.</b> analyse the error message/ problem and determine the cause of the issue, whether it is a hardware, software, or connectivity issue	2	3	-	-
<b>PC16.</b> identify whether recent commissioning/ decommissioning of network devices or changes in software is the cause of the issue	1	2	-	1
<b>PC17.</b> check that all the network cables are connected securely at the correct ports, and make the appropriate correction, as required	1	3	-	-
<b>PC18.</b> perform network device reboot and repair or re-enable the network connection	1	4	-	1
<b>PC19.</b> ping the default gateway, if required	1	1	-	-
<b>PC20.</b> identify appropriate corrective solutions to be applied to network hardware or software to prevent any future issues	1	4	-	1
<b>PC21.</b> assist other groups in troubleshooting problems that require packet analysis or equipment performance review	1	2	-	-
<b>PC22.</b> co-ordinate with the network administrator or device manufacturer for any complex or manufacturing faults	1	3	-	-
<b>PC23.</b> create, publish, and maintain up to date and accurate network maintenance documentation	1	3	-	-
<b>NOS Total</b>	<b>25</b>	<b>65</b>	-	<b>10</b>

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### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	TEL/N6111
<b>NOS Name</b>	Carry out Maintenance of Network Devices
<b>Sector</b>	Telecom
<b>Sub-Sector</b>	Network Managed Services
<b>Occupation</b>	Network (Active Components Installation)
<b>NSQF Level</b>	3
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	30/06/2025
<b>NSQC Clearance Date</b>	30/06/2022

## **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

## Qualification Pack

- 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

<b>Assessment Criteria for Outcomes</b>	<b>Theory Marks</b>	<b>Practical Marks</b>	<b>Project Marks</b>	<b>Viva Marks</b>
<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	-	-
<b>Conserve material/energy/electricity</b>	<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**

<b>Assessment Criteria for Outcomes</b>	<b>Theory Marks</b>	<b>Practical Marks</b>	<b>Project Marks</b>	<b>Viva Marks</b>
<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>	30/06/2025
<b>NSQC Clearance Date</b>	30/06/2022

## TEL/N9102: Interact Effectively with Team Members and Customers

### Description

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

### Scope

The scope covers the following :

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

### Elements and Performance Criteria

#### *Interact effectively with superiors*

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

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

#### *Interact effectively with colleagues and customers*

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

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

#### *Respect differences of gender and ability*

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

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

### Knowledge and Understanding (KU)

## 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>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>	30/06/2025
<b>NSQC Clearance Date</b>	30/06/2022

### 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/N6109.Install the Local Area Network (LAN) and Wide Area Network (WAN) devices	30	60	0	10	100	20
TEL/N6110.Set up and Configuration of Network Switch and Router	25	65	0	10	100	20
TEL/N6111.Carry out Maintenance of Network Devices	25	65	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>135</b>	<b>315</b>	<b>0</b>	<b>50</b>	<b>500</b>	<b>100</b>

## 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

## 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.