Qualification Pack

In-Building Solution Wireless (IBS) Technician

QP Code: TEL/Q6701

Version: 1.0

NSQF Level: 4

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Contents

Qualification Pack

TEL/Q6701: In-Building Solution Wireless (IBS) Technician

Brief Job Description

The individual at work is responsible for inspecting site readiness and conduct due diligence for survey, planning and installing inbuilding wireless solutions as per the client requirement. They are also responsible for maintaining and troubleshooting the installed components in the commercial establishments as per the organizations standards and procedures.

Personal Attributes

The job requires the individual to exhibit attention to details, dexterity, patience, ready to work in the field for long hours, a good team player and sound physical and mental health.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. TEL/N6703: Maintain IBS Networks at the site
2. TEL/N6702: Install Wireless Network Solutions at Site
3. TEL/N6701: Prepare for deploying In-Building Wireless Solutions
4. TEL/N9101: Organize Work and Resources as per Health and Safety Standards
5. DGT/VSQ/N0102: Employability Skills (60 Hours)

Qualification Pack (QP) Parameters

Sector	Telecom
Sub-Sector	Network Managed Services
Occupation	In-Building Solution
Country	India
NSQF Level	4
Credits	14
Aligned to NCO/ISCO/ISIC Code	NCO-2015/7422.9900

Qualification Pack

Minimum Educational Qualification & Experience	12th grade Pass (with science or equivalent) OR 11th grade pass (with 1.5 year relevant experience) OR 10th grade pass (with 3 year relevant experience)
Minimum Level of Education for Training in School	
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	NA
Next Review Date	31/01/2027
NSQC Approval Date	31/01/2024
Version	1.0
Reference code on NQR	QG-04-TL-01994-2024-V1-TSSC
NQR Version	1

TEL/N6703: Maintain IBS Networks at the site

Description

This OS unit is about maintaining the installed IBS networks at the site which includes preventive maintenance, troubleshooting and repair faulty devices and liaise with customer during service visits.

Scope

The scope covers the following :

- Preventive maintenance of installed components
- Troubleshoot and repair faulty devices
- Liaise with customers during service visits at the site

Elements and Performance Criteria

Preventive maintenance of installed components

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

PC1. • perform scheduled maintenance and cleaning of devices
• schedule: daily, weekly, monthly

PC2. inform the network operation team and supervisors about the maintenance planned for the day

PC3. • inspect the system components for wear and tear, corrosion or damage
• components: antennas, cables, amplifiers and other signal processing elements

PC4. test the system performance for system degradation or other performance issues

PC5. clean and dust the system components periodically

PC6. check the temperature of the control room to ensure DAS devices are not getting hot

PC7. check power cables and battery backup performance

PC8. update firmware and software for all system components whenever required

PC9. verify alarms and alerts are configured properly and are functioning

Troubleshoot and repair faulty devices

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

PC10. identify the faulty device by checking the error logs or by using network diagnostic tools

PC11. isolate the device to prevent it from affecting the rest of the devices in the network

PC12. test the device to identify the cause of the problem

PC13. repair or replace the device depending on the nature of the problem

PC14. reconnect the device after repair/replacing the damaged parts

PC15. verify the working of the device that is reconnected

PC16. Monitor the network to check the problem is resolved

PC17. document the repair and include the cause of the problem, steps taken to repair it, and any parts that were replaced, or any software updated

Liaise with customers during service visits at the site

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

PC18. inform customers and other authorities of the planned maintenance activities
PC19. provide customers with sufficient warning of any action than can disrupt their work
PC20. provide customers with details of maintenance carried out
PC21. advise customers of any deterioration in system performance
PC22. take feedback and any suggestions from customers for improvement
PC23. document the details of the maintenance work
PC24. maintain a positive and professional relationship with customers at all times

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. preventive maintenance process
KU2. organization process and guidelines for carrying out scheduled maintenance activities
KU3. process followed to check all devices for any damage or breakage
KU4. repair or replace of the damaged devices as per the organization policy
KU5. troubleshooting details for a particular device
KU6. Importance of regularly testing alarm systems to ensure they work well and send notification on time
KU7. firmware and software updates/patch
KU8. operating mechanism of different testing equipment at the site
KU9. Importance of using the PPE kits while at work and safe use of tools
KU10. safe disposal of the waste materials after the installation
KU11. do's and dont's while interacting with customers as per organization policy

Generic Skills (GS)

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

GS1. reading and writing skills
GS2. communicate effectively with team
GS3. conduct professionally with customers
GS4. interpret client requirement
GS5. plan and prioritize tasks on hand
GS6. complete the task as per the schedule
GS7. read policies and understand the process and practices
GS8. keep updated with the latest and trending technologies
GS9. Maintain punctuality and regularity to work

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Preventive maintenance of installed components	**11**	**20**	**-**	**9**
PC1. • perform scheduled maintenance and cleaning of devices • schedule: daily, weekly, monthly	1	2	-	1
PC2. inform the network operation team and supervisors about the maintenance planned for the day	1	2	-	1
PC3. • inspect the system components for wear and tear, corrosion or damage • components: antennas, cables, amplifiers and other signal processing elements	1	4	-	1
PC4. test the system performance for system degradation or other performance issues	2	2	-	1
PC5. clean and dust the system components periodically	1	2	-	1
PC6. check the temperature of the control room to ensure DAS devices are not getting hot	1	2	-	1
PC7. check power cables and battery backup performance	1	2	-	1
PC8. update firmware and software for all system components whenever required	1	2	-	1
PC9. verify alarms and alerts are configured properly and are functioning	2	2	-	1
Troubleshoot and repair faulty devices	**12**	**16**	**-**	**9**
PC10. identify the faulty device by checking the error logs or by using network diagnostic tools	1	2	-	1
PC11. isolate the device to prevent it from affecting the rest of the devices in the network	1	1	-	1
PC12. test the device to identify the cause of the problem	2	3	-	2

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. repair or replace the device depending on the nature of the problem	1	2	-	1
PC14. reconnect the device after repair/replacing the damaged parts	2	2	-	1
PC15. verify the working of the device that is reconnected	1	2	-	1
PC16. Monitor the network to check the problem is resolved	2	2	-	1
PC17. document the repair and include the cause of the problem, steps taken to repair it, and any parts that were replaced, or any software updated	2	2	-	1
Liaise with customers during service visits at the site	**7**	**9**	**-**	**7**
PC18. inform customers and other authorities of the planned maintenance activities	1	1	-	1
PC19. provide customers with sufficient warning of any action than can disrupt their work	1	1	-	1
PC20. provide customers with details of maintenance carried out	1	2	-	1
PC21. advise customers of any deterioration in system performance	0.5	1	-	1
PC22. take feedback and any suggestions from customers for improvement	0.5	1	-	-
PC23. document the details of the maintenance work	1	2	-	1
PC24. maintain a positive and professional relationship with customers at all times	2	1	-	2
NOS Total	**30**	**45**	**-**	**25**

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N6703
NOS Name	Maintain IBS Networks at the site
Sector	Telecom
Sub-Sector	Network Managed Services
Occupation	In-Building Solution
NSQF Level	4
Credits	3
Version	1.0
Last Reviewed Date	31/01/2024
Next Review Date	31/01/2027
NSQC Clearance Date	31/01/2024

TEL/N6702: Install Wireless Network Solutions at Site

Description

This unit is about identifying the suitable inbuilding wireless solution type to be setup based on the need of the client and the area of the site, following the organizational standards and the policies.

Scope

The scope covers the following :

- Prepare for installation at the site
- Install cellular signal boosters at the site
- Install Distributed Antenna System at the Site
- Install additional Microcells to the existing network
- Configure the devices in the network
- Test the working of the connectivity
- Monitor documentation and support

Elements and Performance Criteria

Prepare for installation at the site

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

PC1. interpret the installation design layout for setting up the distributed antenna system

PC2. • verify the suitable distribution technology in the area of the installation site
• technology: Cellular Signal Boosters, Active DAS, microcells

PC3. verify the installation tool kit is available and is in a working condition

PC4. check the installation site is free of any obstruction

PC5. check the compatibility and usability of the hardware received for commissioning

PC6. wear the PPE kit before the installation process

PC7. arrange UPS backup to the devices in case of power failure

Install cellular signal boosters at the site

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

PC8. install the donor antenna at the top of the building at the right direction to receive cellular signals (different antenna for different carriers)

PC9. connect bidirectional amplifier (BDA) to signal source via co-axial cables to receive and amplify signals

PC10. Install the couplers at the designated area in the building to receive signal from BDA and split the signals in a specific ratio

PC11. use splitters at the designated area to divide the signals further and distribute to other areas within the building

PC12. use attenuators to adjust the signal strength and balance the signal levels in the system

PC13. Install terminations to prevent signal degradation and interference

PC14. test the signal strength and quality

Install Distributed Antenna Systems at the site

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

PC15. install DAS Headend Unit (contains amplifiers, filters, combiners and distribution modules) or the central hub which receives wireless signals from the base station (signal source) and distribute them to the Remote Units (contains amplifiers, filters and signal processing components)

PC16. connect the HEU to the base station (signal source) via fiber optic or coaxial cable (could be on a roof top or indoor)

PC17. install the antennas in strategic locations inside the building to receive and transmit signals throughout the building

PC18. connect the antennas to the remote units using a coaxial cable to carry amplified signals

PC19. use the Power Supply units to provide power to the components of the Active DAS system

PC20. install the system controller software to manage and monitor the Active DAS System

Install additional Microcells to the existing network

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

PC21. determine the number of cells required based on the coverage

PC22. identify the location where the microcell needs to be installed

PC23. mount the small cells on poles or secure them to the structure through bolts or clamps in the identified location

PC24. provide power source to the small cells through a power cable

PC25. connect the small cells to the existing network to provide coverage

PC26. configure the small cells to work with existing network with appropriate software

PC27. test and optimize to ensure they are providing intended coverage

Configure the devices in the network

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

PC28. verify the installed devices are switched on and operational

PC29. Install the device configuration software in the laptop/desktop

PC30. configure the central hub for appropriate signal frequency and power levels

PC31. configure the remote units to receive and amplify signals correctly

PC32. configure the antennas to provide optimal coverage and excellent signal strength

PC33. configure the amplifiers to ensure they are amplifying signals to the desired level

PC34. configure the cables to minimize signal loss and interference

Test the working of the connectivity

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

PC35. check the devices are plugged to the power source and cables are secured

PC36. use cable tester or media tester to check if the cables are working properly or not

PC37. measure the reflected signal quality or loss of signal using Time Domain Reflectometer (TDR used for copper connections) or Optical Time Domain Reflectometer (OTDR used for optical fiber connections)

PC38. use a power meter to measure the power levels at various points in the DAS system

PC39. Conduct the Sweep (frequency sweep, sine sweep) Test and PIM (Passive Intermodulation Distortion) to check the quality of the signal transmitted

PC40. Use a spectrum analyzer to measure noise levels at various points throughout the building

PC41. verify the latest version of the software is installed in all the devices in DAS

PC42. check the configuration settings of all devices in DAS system

PC43. test the communication between the HEU, remote units and other components to ensure they are properly connected and are communicating to each other

PC44. perform load testing to ensure the system can handle expected amount of traffic and usage

PC45. perform stress testing to ensure the system can handle unexpected spikes in traffic and usage

Monitor documentation and support

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

PC46. maintain user manuals, installation guides and technical specifications for DAS system

PC47. maintain the support document for future expansion of the system by adding more devices

PC48. maintain the asset details with their nomenclature

PC49. work closely with DAS vendor to get onsite, remote or telephonic technical support

PC50. provide training for staff members responsible for maintaining the DAS system

PC51. • keep detailed records of all aspects of DAS system for future reference
• records: installation, maintenance, upgrade and repairs

PC52. document maintenance schedule (daily, weekly, monthly schedule)

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. floor plan, distributed antenna system design at the site

KU2. different inbuilding wireless solutions based on the area of the site and the bandwidth requirement

KU3. difference between Passive DAS and Active DAS

KU4. Implementation of Passive DAS and Active DAS

KU5. Indoor antenna systems and outdoor antenna systems

KU6. use of splitters, couplers, co-axial cables, antenna, attenuators, termination and tappers

KU7. functions of NodeB, eNodeB, gNB (Next Generation NodeB for 5G networks)

KU8. concept of Wave propagation

KU9. functions of Headend Unit and Remote Radio Units

KU10. various components of Remote Units and their function

KU11. use of various installation and testing tools

KU12. importance of wearing PPE kits while at work,

KU13. use of tools like media tester, spectrum analyzer, power meter, TDR and OTDR for testing the wireless connectivity, signal strength and noise level

KU14. working of Sweep and PIM testing for quality of signals

KU15. SWEEP testing after maintenance or changes in the settings

KU16. use of software programs for testing the wireless connectivity

KU17. different protocols used for data transmission namely UDP, TCP, FTP and ICMP

KU18. Documentation of all activities daily, weekly and monthly
KU19. government policies with regard to installation of wireless networks
KU20. health hazards when working with high Radio Frequencies and electromagnetic waves
KU21. health, safety, environmental and other relevant legislative and regulatory frameworks
KU22. methods of documenting the troubleshooting techniques

Generic Skills (GS)

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

GS1. reading and writing skills
GS2. communicate effectively with team and clients
GS3. interpret client requirement
GS4. plan and prioritize tasks on hand
GS5. complete the task as per the plan
GS6. read policies and understand the process and practices
GS7. keep updated with the latest and trending technologies
GS8. punctuality at work

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Prepare for installation at the site	**4**	**8**	**-**	**4**
PC1. interpret the installation design layout for setting up the distributed antenna system	1	1	-	-
PC2. • verify the suitable distribution technology in the area of the installation site • technology: Cellular Signal Boosters, Active DAS, microcells	1	2	-	1
PC3. verify the installation tool kit is available and is in a working condition	-	1	-	1
PC4. check the installation site is free of any obstruction	0.5	1	-	-
PC5. check the compatibility and usability of the hardware received for commissioning	0.5	1	-	1
PC6. wear the PPE kit before the installation process	1	1	-	0.5
PC7. arrange UPS backup to the devices in case of power failure	-	1	-	0.5
Install cellular signal boosters at the site	**6**	**7**	**-**	**3**
PC8. install the donor antenna at the top of the building at the right direction to receive cellular signals (different antenna for different carriers)	0.5	1	-	1
PC9. connect bidirectional amplifier (BDA) to signal source via co-axial cables to receive and amplify signals	1	1	-	-
PC10. Install the couplers at the designated area in the building to receive signal from BDA and split the signals in a specific ratio	1	1	-	1
PC11. use splitters at the designated area to divide the signals further and distribute to other areas within the building	1	1	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. use attenuators to adjust the signal strength and balance the signal levels in the system	1	1	-	0.5
PC13. Install terminations to prevent signal degradation and interference	1	1	-	0.5
PC14. test the signal strength and quality	0.5	1	-	-
Install Distributed Antenna Systems at the site	**6**	**8**	**-**	**4**
PC15. install DAS Headend Unit (contains amplifiers, filters, combiners and distribution modules) or the central hub which receives wireless signals from the base station (signal source) and distribute them to the Remote Units (contains amplifiers, filters and signal processing components)	1	2	-	1
PC16. connect the HEU to the base station (signal source) via fiber optic or coaxial cable (could be on a roof top or indoor)	1	2	-	1
PC17. install the antennas in strategic locations inside the building to receive and transmit signals throughout the building	1	1	-	1
PC18. connect the antennas to the remote units using a coaxial cable to carry amplified signals	1	1	-	-
PC19. use the Power Supply units to provide power to the components of the Active DAS system	1	1	-	-
PC20. install the system controller software to manage and monitor the Active DAS System	1	1	-	1
Install additional Microcells to the existing network	**5**	**7**	**-**	**3**
PC21. determine the number of cells required based on the coverage	1	1	-	0.5
PC22. identify the location where the microcell needs to be installed	0.5	1	-	0.5
PC23. mount the small cells on poles or secure them to the structure through bolts or clamps in the identified location	1	1	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC24. provide power source to the small cells through a power cable	0.5	1	-	-
PC25. connect the small cells to the existing network to provide coverage	1	1	-	1
PC26. configure the small cells to work with existing network with appropriate software	0.5	1	-	-
PC27. test and optimize to ensure they are providing intended coverage	0.5	1	-	-
Configure the devices in the network	**4**	**6**	**-**	**2**
PC28. verify the installed devices are switched on and operational	0.5	1	-	-
PC29. Install the device configuration software in the laptop/desktop	0.5	1	-	1
PC30. configure the central hub for appropriate signal frequency and power levels	1	1	-	-
PC31. configure the remote units to receive and amplify signals correctly	0.5	1	-	-
PC32. configure the antennas to provide optimal coverage and excellent signal strength	0.5	1	-	-
PC33. configure the amplifiers to ensure they are amplifying signals to the desired level	0.5	0.5	-	0.5
PC34. configure the cables to minimize signal loss and interference	0.5	0.5	-	0.5
Test the working of the connectivity	**3**	**9**	**-**	**3**
PC35. check the devices are plugged to the power source and cables are secured	0.5	0.5	-	-
PC36. use cable tester or media tester to check if the cables are working properly or not	0.5	0.5	-	0.5
PC37. measure the reflected signal quality or loss of signal using Time Domain Reflectometer (TDR used for copper connections) or Optical Time Domain Reflectometer (OTDR used for optical fiber connections)	0.5	1	-	0.5

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC38. use a power meter to measure the power levels at various points in the DAS system	0.5	1	-	-
PC39. Conduct the Sweep (frequency sweep, sine sweep) Test and PIM (Passive Intermodulation Distortion) to check the quality of the signal transmitted	-	1	-	-
PC40. Use a spectrum analyzer to measure noise levels at various points throughout the building	0.5	0.5	-	-
PC41. verify the latest version of the software is installed in all the devices in DAS	-	0.5	-	0.5
PC42. check the configuration settings of all devices in DAS system	-	1	-	-
PC43. test the communication between the HEU, remote units and other components to ensure they are properly connected and are communicating to each other	0.5	1	-	0.5
PC44. perform load testing to ensure the system can handle expected amount of traffic and usage	-	1	-	0.5
PC45. perform stress testing to ensure the system can handle unexpected spikes in traffic and usage	-	1	-	0.5
Monitor documentation and support	**2**	**5**	**-**	**1**
PC46. maintain user manuals, installation guides and technical specifications for DAS system	-	1	-	0.5
PC47. maintain the support document for future expansion of the system by adding more devices	-	0.5	-	-
PC48. maintain the asset details with their nomenclature	-	1	-	0.5
PC49. work closely with DAS vendor to get onsite, remote or telephonic technical support	-	1	-	-
PC50. provide training for staff members responsible for maintaining the DAS system	-	1	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC51. • keep detailed records of all aspects of DAS system for future reference • records: installation, maintenance, upgrade and repairs	1	0.5	-	-
PC52. document maintenance schedule (daily, weekly, monthly schedule)	1	-	-	-
NOS Total	**30**	**50**	**-**	**20**

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N6702
NOS Name	Install Wireless Network Solutions at Site
Sector	Telecom
Sub-Sector	Network Managed Services
Occupation	In-Building Solution
NSQF Level	4
Credits	5
Version	1.0
Last Reviewed Date	31/01/2024
Next Review Date	31/01/2027
NSQC Clearance Date	31/01/2024

TEL/N6701: Prepare for deploying In-Building Wireless Solutions

Description

This unit is about surveying the site (small, medium to large buildings) for implementing wireless solutions to provide enhanced/improved wireless coverage, data rates, network capacity, and quality of service.

Scope

The scope covers the following :

- Perform site survey (Predictive, Active and Passive) for implementing the wireless solutions
- Inspect site readiness for installation of network devices
- Prepare Network System Design

Elements and Performance Criteria

Perform site survey (Predictive, Active and Passive) for implementing the wireless solutions

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

PC1. identify the need for uninterrupted wireless connectivity in the high-rise buildings

PC2. obtain the clearance for site survey from the competent authorities (building owners, admin in charge of the premises)

PC3. handle the survey tools carefully and securely

PC4. • assess the site/location to determine these parameters
• parameters: wireless coverage, data rates, network capacity, quality of service

PC5. identify and select the appropriate location of RF (Radio Frequency) coverage holes and interference for installation and dead spots

PC6. • select the appropriate survey methods as per the site location and available resources
• methods: predictive, passive, active

PC7. input the data collected from the site visit to the survey software for detailed analysis as per organization standards

PC8. • record results with survey details
• details: signal spectrum, cable paths, mounting locations, the list of activities for installation, hardware required, configuration recommendations, licensing information, etc.

PC9. prepare survey report based on the software recommendations

Inspect site readiness for installation of network devices

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

PC10. study the floor plan for installation of devices

PC11. • select the type of access points
• types: lightweight points, autonomous points (in 2.4 or 5 GHz band)

PC12. assess the ethernet cable requirement and number of access points

PC13. gather the resources for commissioning of the network

PC14. Procure the certificate for installation of the inbuilding wireless solutions from the competent authorities

Prepare Network System Design

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

PC15. measure the space requirement for different devices in the network

PC16. • Identify the suitable signal source depending on the capacity and coverage
• Signal sources: off air antennas (roof top donor antennas), Base Transceiver station (BTS) and micro cells

PC17. • Select the appropriate inbuilding wireless solution depending on the available area, client requirement and budget
• Area: small facility in suburb/rural: Passive DAS (Distributed Antenna System) using Bidirectional Amplifier System (BDA)
• Area:5000-15000 sq ft: micro cells
• Area: 10,00,000-50,00,000 sq ft: Active Distributed Antenna System

PC18. • create the installation design for each component in the available space
• component: access points and distribution unit

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. fundamentals of 5G and legacy mobile communication networking concepts(2G-5G)

KU2. need for uninterrupted wireless connectivity in high rise building

KU3. space requirement considering future expansion

KU4. Radio Frequency in telecom networks

KU5. tools and software used to perform site survey

KU6. difference between the different survey methods namely, predictive, active and passive

KU7. types of tools and techniques used for network layout

KU8. different types of access points viz. lightweight points and autonomous points

KU9. steps to prepare site survey report with all the mandatory observations with the help of a software

KU10. various criteria for choosing the correct distribution type, services and equipment for installation

KU11. different structures in the floor plan and distribution set up

KU12. Different networking types namely: Bidirectional Amplifier System, Microcell System and Distributed Antenna System

KU13. Receive and transmit mode in an amplifier

KU14. signal source technologies namely off-air antenna, Base Transceiver Station (BTS), and micro cells

KU15. Uplink, downlink and the measuring units of signal strength

KU16. potential implications of poor-quality network infrastructure design on the operation of an organization and quality of service

KU17. interpret site survey and floor plan for commissioning the network

KU18. Government and DoT Policies with regard to 5G network usage and e-waste management

Generic Skills (GS)

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

GS1. reading and writing skills
GS2. communicate effectively with team and clients
GS3. Interpret client requirement
GS4. Plan and prioritize tasks on hand
GS5. Adhere to work schedule
GS6. Read policies and understand the process and practices
GS7. keep updated with the latest and trending technologies
GS8. Maintain punctuality and regularity to work

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Perform site survey (Predictive, Active and Passive) for implementing the wireless solutions	**13**	**21**	**-**	**11**
PC1. identify the need for uninterrupted wireless connectivity in the high-rise buildings	-	2	-	1
PC2. obtain the clearance for site survey from the competent authorities (building owners, admin in charge of the premises)	2	2	-	-
PC3. handle the survey tools carefully and securely	-	2	-	1
PC4. • assess the site/location to determine these parameters • parameters: wireless coverage, data rates, network capacity, quality of service	2	2	-	2
PC5. identify and select the appropriate location of RF (Radio Frequency) coverage holes and interference for installation and dead spots	2	2	-	1
PC6. • select the appropriate survey methods as per the site location and available resources • methods: predictive, passive, active	2	2	-	2
PC7. input the data collected from the site visit to the survey software for detailed analysis as per organization standards	2	3	-	1
PC8. • record results with survey details • details: signal spectrum, cable paths, mounting locations, the list of activities for installation, hardware required, configuration recommendations, licensing information, etc.	3	4	-	2
PC9. prepare survey report based on the software recommendations	-	2	-	1
Inspect site readiness for installation of network devices	**8**	**12**	**-**	**8**

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. study the floor plan for installation of devices	1	2	-	1
PC11. • select the type of access points • types: lightweight points, autonomous points (in 2.4 or 5 GHz band)	2	3	-	2
PC12. assess the ethernet cable requirement and number of access points	2	3	-	2
PC13. gather the resources for commissioning of the network	1	2	-	1
PC14. Procure the certificate for installation of the inbuilding wireless solutions from the competent authorities	2	2	-	2
Prepare Network System Design	**9**	**12**	**-**	**6**
PC15. measure the space requirement for different devices in the network	2	3	-	2
PC16. • Identify the suitable signal source depending on the capacity and coverage • Signal sources: off air antennas (roof top donor antennas), Base Transceiver station (BTS) and micro cells	2	3	-	2
PC17. • Select the appropriate inbuilding wireless solution depending on the available area, client requirement and budget • Area: small facility in suburb/rural: Passive DAS (Distributed Antenna System) using Bidirectional Amplifier System (BDA) • Area:5000-15000 sq ft: micro cells • Area: 10,00,000-50,00,000 sq ft: Active Distributed Antenna System	3	3	-	1
PC18. • create the installation design for each component in the available space • component: access points and distribution unit	2	3	-	1
NOS Total	**30**	**45**	**-**	**25**

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N6701
NOS Name	Prepare for deploying In-Building Wireless Solutions
Sector	Telecom
Sub-Sector	Network Managed Services
Occupation	In-Building Solution
NSQF Level	4
Credits	3
Version	1.0
Last Reviewed Date	31/01/2024
Next Review Date	31/01/2027
NSQC Clearance Date	31/01/2024

TEL/N9101: Organize 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

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

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

PC17. sanitize workstation and equipment regularly

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

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

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

PC21. report hygiene and sanitation issues to appropriate authority

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

Conserve material/energy/electricity

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

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

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

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

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

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

PC28. report malfunctioning and lapses in maintenance of equipment

PC29. use electrical equipment and appliances properly

Use effective waste management/recycling practices

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

PC30. identify recyclable, non-recyclable and hazardous waste

PC31. deposit recyclable and reusable material at identified location

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

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

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

KU2. key performance indicators for the new tasks

KU3. feedback processes and formats

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

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

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

KU7. ways of time and cost management

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

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

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

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

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

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

KU14. significance of personal hygiene practice including hand hygiene

KU15. path of disease transmission

KU16. correct method of donning and doffing of PPE

KU17. ways of managing resources and material efficiently

KU18. common electrical problems and common practices of conserving electricity

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

KU20. organisation's procedures for minimizing waste

KU21. waste management and methods of waste disposal

KU22. common sources of pollution and ways to minimize it

Generic Skills (GS)

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

GS1. improve and modify work practices

GS2. complete tasks efficiently and accurately within stipulated time

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

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

GS5. utilize time and manage workload efficiently

GS6. read and comprehend instructions and documents

GS7. accept feedback in a constructive way

GS8. seek clarifications from superior about the job requirement

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

GS10. refer all anomalies to the concerned persons

GS11. analyze situations and make appropriate decisions

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

Assessment Criteria

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

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

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

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N9101
NOS Name	Organize Work and Resources as per Health and Safety Standards
Sector	Telecom
Sub-Sector	Generic
Occupation	Generic
NSQF Level	4
Credits	1
Version	2.0
Last Reviewed Date	31/01/2024
Next Review Date	31/01/2027
NSQC Clearance Date	31/01/2024

DGT/VSQ/N0102: Employability Skills (60 Hours)

Description

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

Scope

The scope covers the following :

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

Elements and Performance Criteria

Introduction to Employability Skills

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

PC1. identify employability skills required for jobs in various industries

PC2. identify and explore learning and employability portals

Constitutional values – Citizenship

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

PC3. recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc.

PC4. follow environmentally sustainable practices

Becoming a Professional in the 21st Century

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

PC5. recognize the significance of 21st Century Skills for employment

PC6. practice the 21st Century Skills such as Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life

Basic English Skills

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

PC7. use basic English for everyday conversation in different contexts, in person and over the telephone

PC8. read and understand routine information, notes, instructions, mails, letters etc. written in English

PC9. write short messages, notes, letters, e-mails etc. in English

Career Development & Goal Setting

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

PC10. understand the difference between job and career

PC11. prepare a career development plan with short- and long-term goals, based on aptitude

Communication Skills

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

PC12. follow verbal and non-verbal communication etiquette and active listening techniques in various settings

PC13. work collaboratively with others in a team

Diversity & Inclusion

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

PC14. communicate and behave appropriately with all genders and PwD

PC15. escalate any issues related to sexual harassment at workplace according to POSH Act

Financial and Legal Literacy

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

PC16. select financial institutions, products and services as per requirement

PC17. carry out offline and online financial transactions, safely and securely

PC18. identify common components of salary and compute income, expenses, taxes, investments etc

PC19. identify relevant rights and laws and use legal aids to fight against legal exploitation

Essential Digital Skills

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

PC20. operate digital devices and carry out basic internet operations securely and safely

PC21. use e- mail and social media platforms and virtual collaboration tools to work effectively

PC22. use basic features of word processor, spreadsheets, and presentations

Entrepreneurship

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

PC23. identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research

PC24. develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion

PC25. identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity

Customer Service

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

PC26. identify different types of customers

PC27. identify and respond to customer requests and needs in a professional manner.

PC28. follow appropriate hygiene and grooming standards

Getting ready for apprenticeship & Jobs

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

PC29. create a professional Curriculum vitae (Résumé)

PC30. search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively

PC31. apply to identified job openings using offline /online methods as per requirement

PC32. answer questions politely, with clarity and confidence, during recruitment and selection

PC33. identify apprenticeship opportunities and register for it as per guidelines and requirements

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. need for employability skills and different learning and employability related portals

KU2. various constitutional and personal values

KU3. different environmentally sustainable practices and their importance

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

KU5. how to use English language for effective verbal (face to face and telephonic) and written communication in formal and informal set up

KU6. importance of career development and setting long- and short-term goals

KU7. about effective communication

KU8. POSH Act

KU9. Gender sensitivity and inclusivity

KU10. different types of financial institutes, products, and services

KU11. how to compute income and expenditure

KU12. importance of maintaining safety and security in offline and online financial transactions

KU13. different legal rights and laws

KU14. different types of digital devices and the procedure to operate them safely and securely

KU15. how to create and operate an e- mail account and use applications such as word processors, spreadsheets etc.

KU16. how to identify business opportunities

KU17. types and needs of customers

KU18. how to apply for a job and prepare for an interview

KU19. apprenticeship scheme and the process of registering on apprenticeship portal

Generic Skills (GS)

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

GS1. read and write different types of documents/instructions/correspondence

GS2. communicate effectively using appropriate language in formal and informal settings

GS3. behave politely and appropriately with all
GS4. how to work in a virtual mode
GS5. perform calculations efficiently
GS6. solve problems effectively
GS7. pay attention to details
GS8. manage time efficiently
GS9. maintain hygiene and sanitization to avoid infection

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Introduction to Employability Skills	**1**	**1**	**-**	**-**
PC1. identify employability skills required for jobs in various industries	-	-	-	-
PC2. identify and explore learning and employability portals	-	-	-	-
Constitutional values – Citizenship	**1**	**1**	**-**	**-**
PC3. recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc.	-	-	-	-
PC4. follow environmentally sustainable practices	-	-	-	-
Becoming a Professional in the 21st Century	**2**	**4**	**-**	**-**
PC5. recognize the significance of 21st Century Skills for employment	-	-	-	-
PC6. practice the 21st Century Skills such as Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life	-	-	-	-
Basic English Skills	**2**	**3**	**-**	**-**
PC7. use basic English for everyday conversation in different contexts, in person and over the telephone	-	-	-	-
PC8. read and understand routine information, notes, instructions, mails, letters etc. written in English	-	-	-	-
PC9. write short messages, notes, letters, e-mails etc. in English	-	-	-	-
Career Development & Goal Setting	**1**	**2**	**-**	**-**

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. understand the difference between job and career	-	-	-	-
PC11. prepare a career development plan with short- and long-term goals, based on aptitude	-	-	-	-
Communication Skills	**2**	**2**	**-**	**-**
PC12. follow verbal and non-verbal communication etiquette and active listening techniques in various settings	-	-	-	-
PC13. work collaboratively with others in a team	-	-	-	-
Diversity & Inclusion	**1**	**2**	**-**	**-**
PC14. communicate and behave appropriately with all genders and PwD	-	-	-	-
PC15. escalate any issues related to sexual harassment at workplace according to POSH Act	-	-	-	-
Financial and Legal Literacy	**2**	**3**	**-**	**-**
PC16. select financial institutions, products and services as per requirement	-	-	-	-
PC17. carry out offline and online financial transactions, safely and securely	-	-	-	-
PC18. identify common components of salary and compute income, expenses, taxes, investments etc	-	-	-	-
PC19. identify relevant rights and laws and use legal aids to fight against legal exploitation	-	-	-	-
Essential Digital Skills	**3**	**4**	**-**	**-**
PC20. operate digital devices and carry out basic internet operations securely and safely	-	-	-	-
PC21. use e- mail and social media platforms and virtual collaboration tools to work effectively	-	-	-	-
PC22. use basic features of word processor, spreadsheets, and presentations	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Entrepreneurship	**2**	**3**	**-**	**-**
PC23. identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research	-	-	-	-
PC24. develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion	-	-	-	-
PC25. identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity	-	-	-	-
Customer Service	**1**	**2**	**-**	**-**
PC26. identify different types of customers	-	-	-	-
PC27. identify and respond to customer requests and needs in a professional manner.	-	-	-	-
PC28. follow appropriate hygiene and grooming standards	-	-	-	-
Getting ready for apprenticeship & Jobs	**2**	**3**	**-**	**-**
PC29. create a professional Curriculum vitae (Résumé)	-	-	-	-
PC30. search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively	-	-	-	-
PC31. apply to identified job openings using offline /online methods as per requirement	-	-	-	-
PC32. answer questions politely, with clarity and confidence, during recruitment and selection	-	-	-	-
PC33. identify apprenticeship opportunities and register for it as per guidelines and requirements	-	-	-	-
NOS Total	**20**	**30**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	DGT/VSQ/N0102
NOS Name	Employability Skills (60 Hours)
Sector	Cross Sectoral
Sub-Sector	Professional Skills
Occupation	Employability
NSQF Level	4
Credits	2
Version	1.0
Last Reviewed Date	29/03/2023
Next Review Date	29/03/2028
NSQC Clearance Date	29/03/2023

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council.

2. 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.

3. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.

4. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.

5. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).

6. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training center based on these criteria.

7. To pass the Qualification Pack assessment, every trainee should score the Recommended Pass % aggregate for the QP.

8. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

Minimum Aggregate Passing % at QP Level : 70

(**Please note**: Every Trainee should score a minimum aggregate passing percentage as specified above, to successfully clear the Qualification Pack assessment.)

Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
TEL/N6703.Maintain IBS Networks at the site	30	45	-	25	100	25
TEL/N6702.Install Wireless Network Solutions at Site	30	50	-	20	100	30
TEL/N6701.Prepare for deploying In-Building Wireless Solutions	30	45	-	25	100	25
TEL/N9101.Organize Work and Resources as per Health and Safety Standards	30	60	-	10	100	10
DGT/VSQ/N0102.Employability Skills (60 Hours)	20	30	-	-	50	10
Total	**140**	**230**	**-**	**80**	**450**	**100**

Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training

Glossary

Sector	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
Occupational Standards (OS)	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria (PC)	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
National Occupational Standards (NOS)	NOS are occupational standards which apply uniquely in the Indian context.
Qualifications Pack (QP)	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
Unit Code	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
Unit Title	Unit title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
Scope	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.

Knowledge and Understanding (KU)	Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.
Organisational Context	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills/ Generic Skills (GS)	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
Electives	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
Options	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.