Qualification Pack

Telecom Electrician (Basic)

QP Code: TEL/Q4304

Version: 1.0

NSQF Level: 3

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Contents

Qualification Pack

TEL/Q4304: Telecom Electrician (Basic)

Brief Job Description

The individual in this job role is responsible for optimizing DC and AC circuits with RLC components, operates series and parallel circuits using simulation software, identify DC power supplies, tests power backup systems, and installs surge protection systems. The individual also ensures efficient and reliable telecommunications operations by troubleshooting, inspecting, and adhering to safety protocols.

Personal Attributes

This individual must have good communication skills with a clear diction, regional language proficiency, strong customer service focus and pleasant personality. They should be self-motivated, should be able to apply practical judgment to successfully perform the assigned responsibilities. The individual should also be of working in high-pressure situations in field which may consist of difficult terrain.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. TEL/N4306: Optimize DC and AC Circuits with RLC Components
2. TEL/N4307: Operate series and parallel circuit using circuit simulation software
3. TEL/N4308: Work with DC power supply system
4. TEL/N4309: Test the power backup system to ensure proper working of DC-DC converter, battery, and controller
5. TEL/N4310: Install the surge protection system
6. TEL/N9101: Organize Work and Resources as per Health and Safety Standards
7. DGT/VSQ/N0101: Employability Skills (30 Hours)

Qualification Pack (QP) Parameters

Sector	Telecom
Sub-Sector	Passive Infrastructure
Occupation	Customer Service - Passive Infrastructure
Country	India

Qualification Pack

NSQF Level	3
Credits	13
Aligned to NCO/ISCO/ISIC Code	NCO-2015/7422.9900
Minimum Educational Qualification & Experience	10th grade pass (or equivalent) with 1 Year of experience OR 9th grade pass with 2 Years of 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-03-TL-01996-2024-V1-TSSC
NQR Version	1

TEL/N4306: Optimize DC and AC Circuits with RLC Components

Description

This OS unit encompasses the knowledge, understanding, and skills needed to Optimize DC and AC Circuits with RLC Components

Scope

The scope covers the following :

- DC Circuits
- AC Circuits
- RLC Circuits and Resonance

Elements and Performance Criteria

DC Circuits

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

PC1. identify simple components such as resistors, voltage sources, and current sources

PC2. solve Ohm's Law (V = IR) to relate voltage, current, and resistance

PC3. calculate power dissipation using P = IV or P = I^2R

PC4. apply KCL and KVL to solve complex circuits with multiple elements and loops

PC5. resolve and repair any issues related to series and parallel connection for voltage, current and resistance

PC6. choose components with appropriate specifications to match the design requirements

PC7. Minimize power losses by selecting resistors with lower values and efficient components

PC8. use voltage dividers or current dividers to achieve desired voltage or current levels

PC9. balance series and parallel connections to distribute loads and minimize stress on components

PC10. use circuit simulation software to model and analyze circuits before implementing them physically

AC Circuits

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

PC11. simulate AC waveforms with characteristics such as amplitude, frequency, and phase

PC12. analyse AC by converting sinusoidal waveforms into complex numbers, considering magnitude and phase angle

PC13. relate uniform load distribution system to develop electrical circuits for whole beam or slab

PC14. work with Phasor Diagrams

PC15. distribute loads uniformly to avoid overloading specific parts of the circuit

PC16. add capacitors to offset inductive loads and improve the power factor

PC17. use thicker conductors with lower resistance to decrease energy loss as heat

PC18. employ voltage regulators to maintain a stable output voltage despite varying loads

PC19. install filters to reduce harmonics, which can distort waveforms and cause inefficiencies

PC20. choose transformers with high efficiency and appropriate turns ratios for voltage transformation

PC21. ensure proper grounding to improve safety and signal integrity

PC22. select components with lower ESR (Equivalent Series Resistance) and higher Q factors for better performance

PC23. avoid operating at resonant frequencies that can lead to excessive currents and voltage magnification

PC24. prevent overheating by designing circuits that efficiently dissipate heat

RLC Circuits and Resonance

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

PC25. analyze the circuit using Kirchhoff's laws and impedance/admittance relationships to determine current, voltage, and resonance conditions

PC26. choose appropriate component values (R, L, C) based on desired frequency response and application requirements

PC27. design for resonance frequency if you need a specific peak response

PC28. consider the trade-offs between bandwidth and Q-factor for your application

PC29. implement power factor correction to improve system efficiency and reduce costs

PC30. simulate and analyze the circuit using software tools like SPICE to predict its behavior accurately

PC31. regularly monitor and maintain the circuit's performance, especially in power factor correction setups

PC32. analyze the circuit's behavior across a range of frequencies. At resonance, the current is maximized, and voltage across the components can be significantly affected

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. the relationship between voltage, current, and resistance in a circuit

KU2. the behavior of resistors in series and parallel configurations

KU3. apply Kirchhoff's laws to accurately calculate currents and voltages, helping in optimizing the circuit layout

KU4. opt for higher efficiency components to minimize energy wastage and heat generation

KU5. visualize the relationship between voltages and currents in different components of AC circuits

KU6. current flow in an AC circuit, combining resistance (R) and reactance (X)

KU7. capacitive reactance (Xc)

KU8. inductive reactance (Xl)

KU9. power factor (PF) measures the phase relationship between voltage and current; optimizing PF helps reduce power losses

KU10. power factor correction improves the efficiency of power transmission and reduces losses, leading to cost savings and better utilization of available power

KU11. bandwidth of a resonant circuit is the range of frequencies around resonance where the impedance is within a certain range. The quality factor (Q-factor) describes how sharp the resonance is a higher Q-factor indicates a narrower bandwidth and a more selective response

Generic Skills (GS)

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

GS1. read and understand documents and other materials
GS2. interact respectfully with end users/customers
GS3. liaise with customers/vendors
GS4. communicate in the local language (preferable)
GS5. work in coordination with team
GS6. work systematically with attention to detail and adherence to all safety requirements
GS7. maintain proper records as per given format

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
DC Circuits	**13**	**14**	**-**	**6**
PC1. identify simple components such as resistors, voltage sources, and current sources	2	2	-	-
PC2. solve Ohm's Law (V = IR) to relate voltage, current, and resistance	1	2	-	1
PC3. calculate power dissipation using P = IV or P = I^2R	1	2	-	1
PC4. apply KCL and KVL to solve complex circuits with multiple elements and loops	1	1	-	2
PC5. resolve and repair any issues related to series and parallel connection for voltage, current and resistance	1	1	-	-
PC6. choose components with appropriate specifications to match the design requirements	2	1	-	-
PC7. Minimize power losses by selecting resistors with lower values and efficient components	2	1	-	-
PC8. use voltage dividers or current dividers to achieve desired voltage or current levels	1	1	-	-
PC9. balance series and parallel connections to distribute loads and minimize stress on components	1	1	-	1
PC10. use circuit simulation software to model and analyze circuits before implementing them physically	1	2	-	1
AC Circuits	**17**	**24**	**-**	**1**
PC11. simulate AC waveforms with characteristics such as amplitude, frequency, and phase	1	1	-	-
PC12. analyse AC by converting sinusoidal waveforms into complex numbers, considering magnitude and phase angle	1	1	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. relate uniform load distribution system to develop electrical circuits for whole beam or slab	2	3	-	-
PC14. work with Phasor Diagrams	2	5	-	-
PC15. distribute loads uniformly to avoid overloading specific parts of the circuit	1	1	-	-
PC16. add capacitors to offset inductive loads and improve the power factor	1	1	-	-
PC17. use thicker conductors with lower resistance to decrease energy loss as heat	1	1	-	-
PC18. employ voltage regulators to maintain a stable output voltage despite varying loads	1	1	-	-
PC19. install filters to reduce harmonics, which can distort waveforms and cause inefficiencies	1	1	-	-
PC20. choose transformers with high efficiency and appropriate turns ratios for voltage transformation	1	1	-	-
PC21. ensure proper grounding to improve safety and signal integrity	1	1	-	-
PC22. select components with lower ESR (Equivalent Series Resistance) and higher Q factors for better performance	1	1	-	1
PC23. avoid operating at resonant frequencies that can lead to excessive currents and voltage magnification	1	2	-	-
PC24. prevent overheating by designing circuits that efficiently dissipate heat	2	4	-	-
RLC Circuits and Resonance	**10**	**12**	**-**	**3**
PC25. analyze the circuit using Kirchhoff's laws and impedance/admittance relationships to determine current, voltage, and resonance conditions	1	1	-	1
PC26. choose appropriate component values (R, L, C) based on desired frequency response and application requirements	2	3	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC27. design for resonance frequency if you need a specific peak response	1	1	-	-
PC28. consider the trade-offs between bandwidth and Q-factor for your application	1	1	-	-
PC29. implement power factor correction to improve system efficiency and reduce costs	1	1	-	-
PC30. simulate and analyze the circuit using software tools like SPICE to predict its behavior accurately	1	2	-	1
PC31. regularly monitor and maintain the circuit's performance, especially in power factor correction setups	1	1	-	-
PC32. analyze the circuit's behavior across a range of frequencies. At resonance, the current is maximized, and voltage across the components can be significantly affected	2	1	-	-
NOS Total	**40**	**50**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N4306
NOS Name	Optimize DC and AC Circuits with RLC Components
Sector	Telecom
Sub-Sector	Passive Infrastructure
Occupation	Customer Service - Passive Infrastructure
NSQF Level	3
Credits	2
Version	1.0
Last Reviewed Date	31/01/2024
Next Review Date	31/01/2027
NSQC Clearance Date	31/01/2024

TEL/N4307: Operate series and parallel circuit using circuit simulation software

Description

This OS unit involves operating series and parallel circuit using circuit simulation software.

Scope

The scope covers the following :

- Practical Electrical Exercises

Elements and Performance Criteria

Practical Electrical Exercises

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

PC1. choose Circuit Simulation Software like LTSpice, CircuitLab, Tinkercad, and Multisim

PC2. open the simulation software and create a new project or circuit design

PC3. connect the components as per the circuit design

PC4. set the resistance values for the resistors and the voltage values for the voltage sources

PC5. insert an ammeter (current measurement tool) in series with the circuit to measure the current

PC6. insert a voltmeter (voltage measurement tool) across each resistor to measure the voltage drops

PC7. run the simulation and observe the results

PC8. observe how changing values affect current distribution, voltage drops, and overall circuit behaviour

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. total current entering the circuit

KU2. voltage drops across each resistor

KU3. voltage across all parallel branches

KU4. different resistor values

KU5. number & types of components

KU6. circuit configurations to understand how series and parallel circuits behave under different conditions

Generic Skills (GS)

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

GS1. write records as per given format

GS2. read and understand manuals, work orders, health and safety instructions, memos, reports etc.

GS3. interact respectfully with supervisor/peers

GS4. communicate in the local language with the customers

GS5. work efficiently and effectively

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

GS7. maintain proper etiquette in front of the customers

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Practical Electrical Exercises	**40**	**50**	**-**	**10**
PC1. choose Circuit Simulation Software like LTSpice, CircuitLab, Tinkercad, and Multisim	4	5	-	1
PC2. open the simulation software and create a new project or circuit design	4	5	-	2
PC3. connect the components as per the circuit design	3	8	-	1
PC4. set the resistance values for the resistors and the voltage values for the voltage sources	7	5	-	1
PC5. insert an ammeter (current measurement tool) in series with the circuit to measure the current	6	9	-	2
PC6. insert a voltmeter (voltage measurement tool) across each resistor to measure the voltage drops	6	4	-	1
PC7. run the simulation and observe the results	3	7	-	1
PC8. observe how changing values affect current distribution, voltage drops, and overall circuit behaviour	7	7	-	1
NOS Total	**40**	**50**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N4307
NOS Name	Operate series and parallel circuit using circuit simulation software
Sector	Telecom
Sub-Sector	Passive Infrastructure
Occupation	Customer Service - Passive Infrastructure
NSQF Level	3
Credits	2
Version	1.0
Last Reviewed Date	31/01/2024
Next Review Date	31/01/2027
NSQC Clearance Date	31/01/2024

TEL/N4308: Work with DC power supply system

Description

This OS unit involves Designing DC power supply that meets the voltage and current requirements.

Scope

The scope covers the following :

- Introduction to DC Power Systems
- Rectifiers and Power Conversion

Elements and Performance Criteria

Introduction to DC Power Systems

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

PC1. identify the voltage (V) and current (I) requirements for different electrical devices like batteries, inverters, UPS, circuit boards and others electrical devices

PC2. choose the type DC power supplies

PC3. ensures that the output voltage remains constant even if the input voltage or load changes

PC4. choose a transformer that converts your input AC voltage to the desired output AC voltage

PC5. place a capacitor across the rectified output to smoothen the pulsating DC voltage

PC6. ensures a steady output voltage

PC7. to limit the maximum current, especially for protection purposes

PC8. calculate the required transformer turns ratio

PC9. connect the components as per design

PC10. power up the circuit and measure the output voltage and current using a multimeter

PC11. adjust the voltage regulator if necessary to achieve the desired output voltage

Rectifiers and Power Conversion

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

PC12. work with AC waveform which is allowed to pass through, while the other half is blocked

PC13. utilizes both halves of the AC input waveform

PC14. reduce the ripple (fluctuations) in the pulsating DC waveform, a filter capacitor is added to the circuit

PC15. convert voltage regulation and can provide galvanic isolation between input and output circuits

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. linear regulators and switching regulators are common methods for voltage regulation

KU2. transformer's turns ratio determines the output voltage

KU3. transformer's secondary winding connects to the rectifier, followed by the filter capacitor and the voltage regulator

KU4. DC-DC converters, such as buck, boost, and buck-boost converters, are used to step down or step up the DC voltage to a desired level

KU5. DC voltage outputs even when the input voltage changes

KU6. voltage regulator (such as a linear regulator or switching regulator) to ensure a constant output voltage regardless of input voltage variations

KU7. smoothing capacitors to further reduce the ripple in the output DC voltage

Generic Skills (GS)

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

GS1. read manuals, work orders, health and safety instructions, etc.

GS2. fill up appropriate technical forms and activity logs in required format of the organisation

GS3. maintain proper records as per prescribed format

GS4. communicate with supervisor and peers

GS5. communicate in the local language (preferably)

GS6. prioritize and execute tasks in a high-pressure environment and handle high pressure situations

GS7. handle multiple tasks and complete them successfully within timelines

GS8. use resources efficiently and effectively

GS9. maintain effective working relationships and team environment

GS10. share knowledge with other team members and colleagues

GS11. utilize appropriate communication channels to escalate unresolved problems to relevant personnel

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Introduction to DC Power Systems	**30**	**35**	**-**	**5**
PC1. identify the voltage (V) and current (I) requirements for different electrical devices like batteries, inverters, UPS, circuit boards and others electrical devices	3	4	-	1
PC2. choose the type DC power supplies	3	3	-	1
PC3. ensures that the output voltage remains constant even if the input voltage or load changes	4	4	-	-
PC4. choose a transformer that converts your input AC voltage to the desired output AC voltage	3	3	-	-
PC5. place a capacitor across the rectified output to smoothen the pulsating DC voltage	2	3	-	-
PC6. ensures a steady output voltage	2	4	-	1
PC7. to limit the maximum current, especially for protection purposes	2	3	-	-
PC8. calculate the required transformer turns ratio	3	2	-	1
PC9. connect the components as per design	2	3	-	-
PC10. power up the circuit and measure the output voltage and current using a multimeter	4	3	-	-
PC11. adjust the voltage regulator if necessary to achieve the desired output voltage	2	3	-	1
Rectifiers and Power Conversion	**10**	**15**	**-**	**5**
PC12. work with AC waveform which is allowed to pass through, while the other half is blocked	2	6	-	1
PC13. utilizes both halves of the AC input waveform	3	2	-	2

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. reduce the ripple (fluctuations) in the pulsating DC waveform, a filter capacitor is added to the circuit	2	4	-	2
PC15. convert voltage regulation and can provide galvanic isolation between input and output circuits	3	3	-	-
NOS Total	**40**	**50**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N4308
NOS Name	Work with DC power supply system
Sector	Telecom
Sub-Sector	Passive Infrastructure
Occupation	Customer Service - Passive Infrastructure
NSQF Level	3
Credits	3
Version	1.0
Last Reviewed Date	31/01/2024
Next Review Date	31/01/2027
NSQC Clearance Date	31/01/2024

TEL/N4309: Test the power backup system to ensure proper working of DC-DC converter, battery, and controller

Description

This OS unit is about testing the power backup system to ensure proper working of DC-DC converter, battery, and controller

Scope

The scope covers the following :

- DC-DC Converters and Voltage Regulation
- Power Backup Systems and UPS

Elements and Performance Criteria

DC-DC Converters and Voltage Regulation

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

PC1. ensure that the power backup system is properly assembled and connected, including the DC-DC converter, battery, controller, and any associated components

PC2. check for any loose connections or damaged components before starting the testing process

PC3. work in a well-ventilated area to prevent exposure to fumes or gases

PC4. connect a variable DC power supply to the input of the DC-DC converter

PC5. set the input voltage to the typical operating range of the DC-DC converter

PC6. measure the output voltage of the DC-DC converter using a multimeter or an oscilloscope

PC7. gradually change the input voltage while monitoring the output voltage

PC8. connect a stable load (resistor, electronic load, or equivalent) to the output of the DC-DC converter

PC9. measure the output voltage of the converter with the load connected and varying load conditions

PC10. connect the DC-DC converter to a stable input voltage

PC11. measure the input and output power using appropriate instruments

PC12. calculate the efficiency of the DC-DC converter using the formula: Efficiency (%) = (Output Power / Input Power) * 100

PC13. connect the battery to the DC-DC converter's output and the controller

PC14. monitor the charging process to ensure that the battery voltage rises steadily and does not exceed the safe charging voltage limit

PC15. monitor the discharging process to ensure that the battery voltage remains within the safe discharge voltage range

PC16. connect a known resistive load to the battery output and start discharging

PC17. measure the discharge time until the battery voltage reaches its lower safe limit. Calculate the battery capacity using the formula: Capacity (Ah) = (Current × Discharge Time) / 3600

PC18. test the various functions of the controller, such as input/output voltage regulation, overvoltage/undervoltage protection, and temperature monitoring

PC19. simulate fault conditions to ensure that the controller responds appropriately

PC20. verify that the controller can communicate data accurately and respond to commands

PC21. integrate the DC-DC converter, battery, and controller into the full power backup system

PC22. simulate power outage or disruption scenarios to ensure the system switches to battery power seamlessly

PC23. monitor the system's behavior during transitions and ensure that the voltage regulation, battery charging, and protection mechanisms function as intended

Power Backup Systems and UPS

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

PC24. determine the power capacity (measured in volt-amperes or watts) required for the devices you want to protect

PC25. choose between online, offline, and line-interactive UPS systems based on your needs

PC26. plug the UPS into a power outlet

PC27. connect the devices you want to protect to the UPS's output sockets

PC28. connect the UPS to your computer if you want to monitor its status and configure settings

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. output voltage should remain relatively stable within the converter's specified voltage regulation limits

KU2. output voltage should remain within acceptable limits as the load changes

KU3. controller supports communication interfaces (RS-232, RS-485, etc.), connect it to a computer or monitoring system

KU4. temporary power during blackouts or voltage fluctuations

KU5. UPS should be able to handle the load

KU6. UPS offers the highest level of protection but can be more expensive

KU7. critical devices or equipment that require uninterrupted power

KU8. power consumption (in watts or VA) of each device

KU9. total power requirements to choose an appropriately sized UPS

KU10. factors like runtime, input/output voltage compatibility, and type (online, line-interactive, or standby) based on your needs

KU11. safety precautions provided in the UPS manual

KU12. UPS software

KU13. UPS setup, maintenance, and troubleshooting

KU14. input voltage to a lower output voltage

KU15. heat sinks and thermal management

KU16. PID controllers

KU17. DC-DC converters with effective voltage regulation

Generic Skills (GS)

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

GS1. communicate respectfully with customer/customer facing teams
GS2. read and understand documents and reports
GS3. speak and understand English/regional language
GS4. read and write in English or any regional language
GS5. manage time efficiently
GS6. listen carefully and respond appropriately
GS7. work systematically with attention to detail

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
DC-DC Converters and Voltage Regulation	**24**	**45**	**-**	**8**
PC1. ensure that the power backup system is properly assembled and connected, including the DC-DC converter, battery, controller, and any associated components	2	3	-	-
PC2. check for any loose connections or damaged components before starting the testing process	1	2	-	1
PC3. work in a well-ventilated area to prevent exposure to fumes or gases	1	-	-	-
PC4. connect a variable DC power supply to the input of the DC-DC converter	1	2	-	1
PC5. set the input voltage to the typical operating range of the DC-DC converter	1	-	-	1
PC6. measure the output voltage of the DC-DC converter using a multimeter or an oscilloscope	1	3	-	1
PC7. gradually change the input voltage while monitoring the output voltage	1	2	-	-
PC8. connect a stable load (resistor, electronic load, or equivalent) to the output of the DC-DC converter	1	2	-	-
PC9. measure the output voltage of the converter with the load connected and varying load conditions	1	3	-	1
PC10. connect the DC-DC converter to a stable input voltage	1	-	-	-
PC11. measure the input and output power using appropriate instruments	1	2	-	-
PC12. calculate the efficiency of the DC-DC converter using the formula: Efficiency (%) = (Output Power / Input Power) * 100	1	-	-	-
PC13. connect the battery to the DC-DC converter's output and the controller	1	3	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. monitor the charging process to ensure that the battery voltage rises steadily and does not exceed the safe charging voltage limit	1	2	-	1
PC15. monitor the discharging process to ensure that the battery voltage remains within the safe discharge voltage range	1	2	-	-
PC16. connect a known resistive load to the battery output and start discharging	1	3	-	-
PC17. measure the discharge time until the battery voltage reaches its lower safe limit. Calculate the battery capacity using the formula: Capacity (Ah) = (Current × Discharge Time) / 3600	1	2	-	-
PC18. test the various functions of the controller, such as input/output voltage regulation, overvoltage/undervoltage protection, and temperature monitoring	1	2	-	1
PC19. simulate fault conditions to ensure that the controller responds appropriately	1	1	-	-
PC20. verify that the controller can communicate data accurately and respond to commands	1	2	-	-
PC21. integrate the DC-DC converter, battery, and controller into the full power backup system	1	3	-	-
PC22. simulate power outage or disruption scenarios to ensure the system switches to battery power seamlessly	1	3	-	-
PC23. monitor the system's behavior during transitions and ensure that the voltage regulation, battery charging, and protection mechanisms function as intended	1	3	-	-
Power Backup Systems and UPS	**16**	**5**	**-**	**2**
PC24. determine the power capacity (measured in volt-amperes or watts) required for the devices you want to protect	3	1	-	-
PC25. choose between online, offline, and line-interactive UPS systems based on your needs	2	1	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC26. plug the UPS into a power outlet	4	-	-	-
PC27. connect the devices you want to protect to the UPS's output sockets	3	-	-	1
PC28. connect the UPS to your computer if you want to monitor its status and configure settings	4	3	-	-
NOS Total	**40**	**50**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N4309
NOS Name	Test the power backup system to ensure proper working of DC-DC converter, battery, and controller
Sector	Telecom
Sub-Sector	Passive Infrastructure
Occupation	Customer Service - Passive Infrastructure
NSQF Level	3
Credits	3
Version	1.0
Last Reviewed Date	31/01/2024
Next Review Date	31/01/2027
NSQC Clearance Date	31/01/2024

TEL/N4310: Install the surge protection system

Description

This OS unit is about designing and installing the surge protection system

Scope

The scope covers the following :

- Practical DC Power Systems Exercises

Elements and Performance Criteria

Practical DC Power Systems Exercises

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

PC1. determine the critical electrical and electronic equipment that need protection

PC2. assess the potential sources of surges, such as lightning strikes, power grid fluctuations, and electromagnetic interference

PC3. select the appropriate types of surge protection devices based on your assessment: Type 1 for service entrance, Type 2 for distribution boards, and Type 3 for individual devices.

PC4. ensure that the chosen SPDs have voltage ratings suitable for system's operating voltage

PC5. install SPDs at strategic points where electrical surges are likely to enter your system

PC6. follow grounding standards and guidelines to create a low-resistance path for surge currents to dissipate

PC7. use appropriate wiring and cables to connect the SPDs to the system. Keep wire lengths short and avoid sharp bends to minimize impedance

PC8. ensure coordination between different types of SPDs to prevent unwanted interaction and improve overall protection

PC9. install a Type 1 SPD at the main electrical service entrance to divert high-energy surges

PC10. connect it to the main grounding system and the supply lines

PC11. test the SPDs to ensure they're working as intended. Some SPDs come with built-in indicators or monitoring systems

PC12. inspect and maintain the surge protection system

PC13. replace SPDs if they've been subjected to a significant surge event or if their performance is compromised

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. computers, communication systems, appliances, and sensitive industrial machinery

KU2. surge protection levels for equipment based on industry standards and the equipment's sensitivity

KU3. service entrance, distribution panels, and close to sensitive equipment

KU4. proper grounding techniques for effective surge protection

KU5. documentation of surge protection system

KU6. surge protection strategy should adapt accordingly to provide reliable and effective protection against transient voltage surges

Generic Skills (GS)

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

GS1. maintain proper records as per given format

GS2. read and comprehend technical manual and literature

GS3. read and understand work orders, health and safety instructions, memos, reports etc

GS4. communicate with supervisor and fellow technicians

GS5. communicate in the local language with the customers

GS6. maintain proper etiquette in front of the customers

GS7. work with minimum disturbance

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Practical DC Power Systems Exercises	**30**	**60**	**-**	**10**
PC1. determine the critical electrical and electronic equipment that need protection	2	6	-	1
PC2. assess the potential sources of surges, such as lightning strikes, power grid fluctuations, and electromagnetic interference	3	6	-	1
PC3. select the appropriate types of surge protection devices based on your assessment: Type 1 for service entrance, Type 2 for distribution boards, and Type 3 for individual devices.	4	3	-	1
PC4. ensure that the chosen SPDs have voltage ratings suitable for system's operating voltage	3	4	-	1
PC5. install SPDs at strategic points where electrical surges are likely to enter your system	2	4	-	-
PC6. follow grounding standards and guidelines to create a low-resistance path for surge currents to dissipate	2	4	-	1
PC7. use appropriate wiring and cables to connect the SPDs to the system. Keep wire lengths short and avoid sharp bends to minimize impedance	2	4	-	1
PC8. ensure coordination between different types of SPDs to prevent unwanted interaction and improve overall protection	2	4	-	1
PC9. install a Type 1 SPD at the main electrical service entrance to divert high-energy surges	4	5	-	1
PC10. connect it to the main grounding system and the supply lines	2	5	-	1
PC11. test the SPDs to ensure they're working as intended. Some SPDs come with built-in indicators or monitoring systems	2	5	-	1
PC12. inspect and maintain the surge protection system	1	5	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. replace SPDs if they've been subjected to a significant surge event or if their performance is compromised	1	5	-	-
NOS Total	**30**	**60**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N4310
NOS Name	Install the surge protection system
Sector	Telecom
Sub-Sector	Passive Infrastructure
Occupation	Customer Service - Passive Infrastructure
NSQF Level	3
Credits	1
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/N0101: Employability Skills (30 Hours)

Description

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

Scope

The scope covers the following :

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

Elements and Performance Criteria

Introduction to Employability Skills

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

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

Constitutional values – Citizenship

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

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

Becoming a Professional in the 21st Century

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

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

Basic English Skills

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

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

Communication Skills

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

PC5. follow good manners while communicating with others

PC6. work with others in a team

Diversity & Inclusion

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

PC7. communicate and behave appropriately with all genders and PwD

PC8. report any issues related to sexual harassment

Financial and Legal Literacy

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

PC9. use various financial products and services safely and securely

PC10. calculate income, expenses, savings etc.

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

Essential Digital Skills

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

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

PC13. use internet and social media platforms securely and safely

Entrepreneurship

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

PC14. identify and assess opportunities for potential business

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

Customer Service

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

PC16. identify different types of customers

PC17. identify customer needs and address them appropriately

PC18. follow appropriate hygiene and grooming standards

Getting ready for apprenticeship & Jobs

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

PC19. create a basic biodata

PC20. search for suitable jobs and apply

PC21. identify and register apprenticeship opportunities as per requirement

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. need for employability skills

KU2. various constitutional and personal values

KU3. different environmentally sustainable practices and their importance

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

KU5. how to use basic spoken English language

KU6. Do and dont of effective communication

KU7. inclusivity and its importance

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

KU9. different types of financial products and services

KU10. how to compute income and expenses
KU11. importance of maintaining safety and security in financial transactions
KU12. different legal rights and laws
KU13. how to operate digital devices and applications safely and securely
KU14. ways to identify business opportunities
KU15. types of customers and their needs
KU16. how to apply for a job and prepare for an interview
KU17. apprenticeship scheme and the process of registering on apprenticeship portal

Generic Skills (GS)

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

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

Assessment Criteria

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

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. calculate income, expenses, savings etc.	-	-	-	-
PC11. approach the concerned authorities for any exploitation as per legal rights and laws	-	-	-	-
Essential Digital Skills	**4**	**6**	**-**	**-**
PC12. operate digital devices and use its features and applications securely and safely	-	-	-	-
PC13. use internet and social media platforms securely and safely	-	-	-	-
Entrepreneurship	**3**	**5**	**-**	**-**
PC14. identify and assess opportunities for potential business	-	-	-	-
PC15. identify sources for arranging money and associated financial and legal challenges	-	-	-	-
Customer Service	**2**	**2**	**-**	**-**
PC16. identify different types of customers	-	-	-	-
PC17. identify customer needs and address them appropriately	-	-	-	-
PC18. follow appropriate hygiene and grooming standards	-	-	-	-
Getting ready for apprenticeship & Jobs	**1**	**3**	**-**	**-**
PC19. create a basic biodata	-	-	-	-
PC20. search for suitable jobs and apply	-	-	-	-
PC21. identify and register apprenticeship opportunities as per requirement	-	-	-	-
NOS Total	**20**	**30**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	DGT/VSQ/N0101
NOS Name	Employability Skills (30 Hours)
Sector	Cross Sectoral
Sub-Sector	Professional Skills
Occupation	Employability
NSQF Level	2
Credits	1
Version	1.0
Last Reviewed Date	30/05/2024
Next Review Date	30/05/2027
NSQC Clearance Date	30/05/2024

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 : 50

(**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/N4306.Optimize DC and AC Circuits with RLC Components	40	50	-	10	100	20
TEL/N4307.Operate series and parallel circuit using circuit simulation software	40	50	-	10	100	15
TEL/N4308.Work with DC power supply system	40	50	-	10	100	15
TEL/N4309.Test the power backup system to ensure proper working of DC-DC converter, battery, and controller	40	50	-	10	100	15
TEL/N4310.Install the surge protection system	30	60	-	10	100	15
TEL/N9101.Organize Work and Resources as per Health and Safety Standards	30	60	-	10	100	10
DGT/VSQ/N0101.Employability Skills (30 Hours)	20	30	-	-	50	10
Total	**240**	**350**	**-**	**60**	**650**	**100**

Acronyms

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

Glossary

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

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