

Qualification Pack



Irrigation Pump Technician (Small Capacity)

QP Code: AGR/Q1104

Version: 4.0

NSQF Level: 4

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AGR/Q1104: Irrigation Pump Technician (Small Capacity)

Brief Job Description

An Irrigation Pump Technician (Small Capacity) is responsible for installation, repair and maintenance of different types of irrigation systems such as tube well irrigation system and submersible pump.

Personal Attributes

The individual must be physically fit to work in outdoor settings. The person must be good at communication with the ability to co-ordinate with others to achieve work objectives. Ability to read and write are other important attributes required in this job role.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. [AGR/N1113: Carry out installation, repair and maintenance of the tubewell irrigation system](#)
2. [AGR/N1114: Carry out installation, repair and maintenance of submersible pump](#)
3. [AGR/N1142: Carry out re-winding of an electric motor](#)
4. [AGR/N9903: Maintain health and safety at the workplace](#)
5. [DGT/VSQ/N0102: Employability Skills \(60 Hours\)](#)

Qualification Pack (QP) Parameters

Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Farm Machinery, Equipment Operation and Maintenance
Country	India
NSQF Level	4
Credits	13
Aligned to NCO/ISCO/ISIC Code	NCO-2015/3142.9900

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Minimum Educational Qualification & Experience	12th grade Pass (or equivalent) with NA of experience OR 10th grade pass with 3 Years of experience relevant experience in Agriculture and allied sectors OR Previous relevant Qualification of NSQF Level (3.5) with 1.5 years of experience relevant experience in Agriculture and allied sectors OR Previous relevant Qualification of NSQF Level (3) with 3 Years of experience relevant experience in Agriculture and allied sectors
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	30/05/2027
NSQC Approval Date	30/05/2024
Version	4.0
Reference code on NQR	QG-04-AG-02606-2024-V2-ASCI
NQR Version	2.0

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AGR/N1113: Carry out installation, repair and maintenance of the tubewell irrigation system

Description

This OS unit is about carrying out installation, repair and maintenance of a tubewell irrigation system.

Scope

The scope covers the following :

- Prepare for tubewell installation
- Carry out the installation of tubewell
- Carry out repair and maintenance of tubewell
- Carry out maintenance of a diesel engine

Elements and Performance Criteria

Prepare for tubewell installation

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

- PC1.** conduct a field survey to estimate the irrigation requirements at the site
- PC2.** measure the groundwater level to choose an appropriate location for the installation of tubewell
- PC3.** assess the soil type and hardness of the ground at the site for its suitability for the tubewell installation
- PC4.** check the availability of regular supply of electricity to operate the tubewell
- PC5.** select an appropriate method for boring the well
- PC6.** estimate the requirement of various material for the installation of tubewell such as High-Density Polyethylene (HDPE) pipes and fittings
- PC7.** prepare an installation plan considering all the relevant requirements
- PC8.** arrange the necessary tools, machineries, material and Personal Protective Equipment (PPE) required for the installation
- PC9.** arrange for the protection of tubewell site from any contamination during the installation

Carry out the installation of tubewell

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

- PC10.** set up a well casing pipe to prevent the walls of the well from collapsing
- PC11.** drill the bore hole with the required diameter as per the plan
- PC12.** install blind pipe, strainer or slotted pipe, reducer and bail-plug as per the Standard Operating Procedure (SOP)
- PC13.** disinfect the pipelines using the approved disinfectants such as bleaching powder or potash
- PC14.** flush out all sand, soil and debris from the pipes
- PC15.** construct a pump house to protect the tubewell pump
- PC16.** test the tubewell for correct functioning after installation
- PC17.** use the relevant PPE during the installation process

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Carry out repair and maintenance of tubewell

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

- PC18.** measure the water levels to ensure that water is not being over-pumped from the well
- PC19.** assess the quality of water to ensure that the water is free from any chemicals, contaminants and has sand/ soil particles within the prescribed limits
- PC20.** examine the pipes, fittings and pump house for any wear and tear or damage
- PC21.** repair or replace any worn out/ damaged pipes and fittings as per the SOP
- PC22.** maintain the record of repair and maintenance activities
- PC23.** schedule the next maintenance as per the maintenance schedule

Carry out maintenance of a diesel engine

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

- PC24.** check the coolant and engine oil are at the recommended level
- PC25.** examine the fuel pump and injector for any contaminants in the fuel
- PC26.** check that nuts and bolts are secured tightly
- PC27.** clean the radiator and fuel, coolant, air, oil filters as per the SOP
- PC28.** apply grease/ lubricant on the greasing points
- PC29.** replace the engine oil/ coolant/ air filter/ coolant filter/ oil filter/ radiator as per the maintenance schedule

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** correct use of the relevant PPE
- KU2.** applicable record-keeping requirements in the job role
- KU3.** parameters to assess before planning a tubewell irrigation system at a site
- KU4.** different types of pipes and pipe fittings used in a tubewell installation such as blind pipe, strainer or slotted pipe, reducer, bail-plug and HDPE fittings
- KU5.** use of the relevant tools and machinery
- KU6.** different methods of boring
- KU7.** how to protect the tubewell installation site from any contamination
- KU8.** installation process for a tubewell irrigation system
- KU9.** approved disinfectants such as bleaching powder or potash to disinfect the pipes
- KU10.** the process to make electrical connections
- KU11.** testing of the tubewell system after installation
- KU12.** common faults and repair needs of a tubewell irrigation system and the process to carry out repair and maintenance
- KU13.** Dangerous Machines (Regulation) Act, 1983
- KU14.** prescribed coolant and engine oil levels for a diesel engine
- KU15.** maintenance needs of the fuel pump and injector in a diesel engine
- KU16.** the maintenance schedule to replace the radiator, oil filter, fuel filter, coolant filter and air filter

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Generic Skills (GS)

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

- GS1.** write work-related notes
- GS2.** plan and prioritise tasks to ensure timely completion
- GS3.** communicate politely and professionally
- GS4.** read and understand the relevant guides and manuals
- GS5.** listen attentively to understand the instructions given
- GS6.** take quick decisions to deal with workplace emergencies/ accidents
- GS7.** identify possible disruptions to work and take appropriate preventive measures

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare for tubewell installation</i>	10	12	-	10
PC1. conduct a field survey to estimate the irrigation requirements at the site	-	-	-	-
PC2. measure the groundwater level to choose an appropriate location for the installation of tubewell	-	-	-	-
PC3. assess the soil type and hardness of the ground at the site for its suitability for the tubewell installation	-	-	-	-
PC4. check the availability of regular supply of electricity to operate the tubewell	-	-	-	-
PC5. select an appropriate method for boring the well	-	-	-	-
PC6. estimate the requirement of various material for the installation of tubewell such as High-Density Polyethylene (HDPE) pipes and fittings	-	-	-	-
PC7. prepare an installation plan considering all the relevant requirements	-	-	-	-
PC8. arrange the necessary tools, machineries, material and Personal Protective Equipment (PPE) required for the installation	-	-	-	-
PC9. arrange for the protection of tubewell site from any contamination during the installation	-	-	-	-
<i>Carry out the installation of tubewell</i>	10	12	-	10
PC10. set up a well casing pipe to prevent the walls of the well from collapsing	-	-	-	-
PC11. drill the bore hole with the required diameter as per the plan	-	-	-	-
PC12. install blind pipe, strainer or slotted pipe, reducer and bail-plug as per the Standard Operating Procedure (SOP)	-	-	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. disinfect the pipelines using the approved disinfectants such as bleaching powder or potash	-	-	-	-
PC14. flush out all sand, soil and debris from the pipes	-	-	-	-
PC15. construct a pump house to protect the tubewell pump	-	-	-	-
PC16. test the tubewell for correct functioning after installation	-	-	-	-
PC17. use the relevant PPE during the installation process	-	-	-	-
<i>Carry out repair and maintenance of tubewell</i>	5	8	-	5
PC18. measure the water levels to ensure that water is not being over-pumped from the well	-	-	-	-
PC19. assess the quality of water to ensure that the water is free from any chemicals, contaminants and has sand/ soil particles within the prescribed limits	-	-	-	-
PC20. examine the pipes, fittings and pump house for any wear and tear or damage	-	-	-	-
PC21. repair or replace any worn out/ damaged pipes and fittings as per the SOP	-	-	-	-
PC22. maintain the record of repair and maintenance activities	-	-	-	-
PC23. schedule the next maintenance as per the maintenance schedule	-	-	-	-
<i>Carry out maintenance of a diesel engine</i>	5	8	-	5
PC24. check the coolant and engine oil are at the recommended level	-	-	-	-
PC25. examine the fuel pump and injector for any contaminants in the fuel	-	-	-	-
PC26. check that nuts and bolts are secured tightly	-	-	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC27. clean the radiator and fuel, coolant, air, oil filters as per the SOP	-	-	-	-
PC28. apply grease/ lubricant on the greasing points	-	-	-	-
PC29. replace the engine oil/ coolant/ air filter/ coolant filter/ oil filter/ radiator as per the maintenance schedule	-	-	-	-
NOS Total	30	40	-	30

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National Occupational Standards (NOS) Parameters

NOS Code	AGR/N1113
NOS Name	Carry out installation, repair and maintenance of the tubewell irrigation system
Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Farm Machinery, Equipment Operation and Maintenance
NSQF Level	4
Credits	3
Version	3.0
Last Reviewed Date	30/05/2024
Next Review Date	30/05/2027
NSQC Clearance Date	30/05/2024

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AGR/N1114: Carry out installation, repair and maintenance of submersible pump

Description

This OS unit is about carrying out installation, repair and maintenance of a submersible pump.

Scope

The scope covers the following :

- Prepare to install the submersible pump
- Install the submersible pump
- Carry out repair and maintenance of submersible pump
- Optimise resource utilisation

Elements and Performance Criteria

Prepare to install the submersible pump

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

- PC1.** identify a spot with the recommended level of groundwater for the installation of submersible pump
- PC2.** select a submersible pump with the appropriate capacity according to the water needs of the proposed crop(s)
- PC3.** arrange the tools, equipment and accessories required for the installation

Install the submersible pump

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

- PC4.** position the submersible pump vertically on its base
- PC5.** ensure that all the fasteners are secured tightly
- PC6.** remove the two-threaded plugs at the top/ circumference of the cable box
- PC7.** top up the submersible motor with clean water to the prescribed level to check for any leakage
- PC8.** insert the two-threaded plugs again
- PC9.** connect the free end of the motor's 3-core cable with the power supply cable from the control panel
- PC10.** carry out waterproofing of the submersible motor cable and supply cable joint as per the manufacturer's instructions
- PC11.** check that the direction of rotation of the motor shaft matches the direction marked on the visible cable box top face
- PC12.** test the pump and motor for free rotation
- PC13.** ensure the pump and motor shaft have smooth upward and downward movement
- PC14.** carry out coupling of the submersible motor to the pump as per the manufacturer's instructions
- PC15.** connect the control panel with the submersible motor using a single cable

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- PC16.** ground the submersible motor
- PC17.** remove any excess cable while joining the cables, ensuring that the cables don't have any coils
- PC18.** connect the cable firmly with the starter terminals
- PC19.** install the submersible pump and motor at the identified spot
- PC20.** test the submersible pump for correct functioning and electricity hazards
- PC21.** check that the underground water drawn by pump is sand and contaminant-free
- Carry out repair and maintenance of the submersible pump*
- To be competent, the user/individual on the job must be able to:
- PC22.** check the insulation is intact on the power cables, control cables and on all phases of the motor
- PC23.** inspect the pump/ mixer, motor/ stator housing, bearing sensors and impeller/ propeller for any wear and tear or damage
- PC24.** check the valves for correct functioning
- PC25.** check the shaft for correct rotation
- PC26.** measure the resistance between stator windings to ensure it is as prescribed by the manufacturer
- PC27.** check that all phases of the electrical control panel has the recommended voltage supply
- PC28.** measure the voltage balance between all phases on the load side of the pump/ mixer control panel with pump/ mixer running to ensure it is as recommended
- PC29.** check the amperage draw on all phases of the motor
- PC30.** check the motor thermal protection control system for correct functioning
- PC31.** adjust or repair any loose or faulty electrical connections within the control panel
- PC32.** replace oil in the oil housing with the recommended grade of oil
- PC33.** replace the rotating and stationary impeller wear rings as required
- PC34.** carry out draw down test on the pump to ensure it pumps water at the prescribed Gallons Per Minute (GPM)
- PC35.** carry out pump shut-off head pressure test to check the pressure being produced by the pump
- PC36.** maintain the record of repair and maintenance

Optimise resource utilisation

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

- PC37.** optimise usage of various material in different tasks/ activities/ processes
- PC38.** optimise usage of water/ electricity/ energy in various tasks/ activities/ processes
- PC39.** connect electrical tools and equipment safely and turn off when not in use
- PC40.** segregate waste into different categories
- PC41.** dispose non-recyclable waste appropriately
- PC42.** deposit recyclable and reusable material at the identified location

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

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- KU1.** the identification of a spot with the recommended level of groundwater for the installation of a submersible pump
- KU2.** the process of selecting a submersible pump according to the crop's water requirements
- KU3.** use of the relevant tools and equipment
- KU4.** the process of preparing a submersible pump for installation
- KU5.** the process of installing a submersible pump
- KU6.** the importance and method of waterproofing cables and cable joints during the installation process
- KU7.** the process to test the submersible pump after the installation
- KU8.** common things to check and the correct process of carrying out the repair and maintenance of a submersible pump
- KU9.** how to conduct draw down test and 'pump shut-off head pressure' test on a submersible pump
- KU10.** methods of recycling and disposing different types of waste
- KU11.** common sources of pollution and ways to minimise it
- KU12.** the importance of following environmental and ecological best practices to minimise the impact on the environment
- KU13.** benefits of resource optimisation

Generic Skills (GS)

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

- GS1.** communicate clearly and politely
- GS2.** prepare work-related notes and records
- GS3.** listen attentively to understand the information/ instructions being given
- GS4.** evaluate all possible solutions to a problem before selecting the best one
- GS5.** take quick decisions to deal with workplace emergencies/ accidents
- GS6.** identify possible disruptions to work and take preventive measures within the limits of authority
- GS7.** read the relevant literature to get updated information about the field of work
- GS8.** plan and schedule tasks for effective time-management

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare to install the submersible pump</i>	5	10	-	5
PC1. identify a spot with the recommended level of groundwater for the installation of submersible pump	-	-	-	-
PC2. select a submersible pump with the appropriate capacity according to the water needs of the proposed crop(s)	-	-	-	-
PC3. arrange the tools, equipment and accessories required for the installation	-	-	-	-
<i>Install the submersible pump</i>	10	15	-	10
PC4. position the submersible pump vertically on its base	-	-	-	-
PC5. ensure that all the fasteners are secured tightly	-	-	-	-
PC6. remove the two-threaded plugs at the top/ circumference of the cable box	-	-	-	-
PC7. top up the submersible motor with clean water to the prescribed level to check for any leakage	-	-	-	-
PC8. insert the two-threaded plugs again	-	-	-	-
PC9. connect the free end of the motor's 3-core cable with the power supply cable from the control panel	-	-	-	-
PC10. carry out waterproofing of the submersible motor cable and supply cable joint as per the manufacturer's instructions	-	-	-	-
PC11. check that the direction of rotation of the motor shaft matches the direction marked on the visible cable box top face	-	-	-	-
PC12. test the pump and motor for free rotation	-	-	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. ensure the pump and motor shaft have smooth upward and downward movement	-	-	-	-
PC14. carry out coupling of the submersible motor to the pump as per the manufacturer's instructions	-	-	-	-
PC15. connect the control panel with the submersible motor using a single cable	-	-	-	-
PC16. ground the submersible motor	-	-	-	-
PC17. remove any excess cable while joining the cables, ensuring that the cables don't have any coils	-	-	-	-
PC18. connect the cable firmly with the starter terminals	-	-	-	-
PC19. install the submersible pump and motor at the identified spot	-	-	-	-
PC20. test the submersible pump for correct functioning and electricity hazards	-	-	-	-
PC21. check that the underground water drawn by pump is sand and contaminant-free	-	-	-	-
<i>Carry out repair and maintenance of the submersible pump</i>	10	10	-	10
PC22. check the insulation is intact on the power cables, control cables and on all phases of the motor	-	-	-	-
PC23. inspect the pump/ mixer, motor/ stator housing, bearing sensors and impeller/ propeller for any wear and tear or damage	-	-	-	-
PC24. check the valves for correct functioning	-	-	-	-
PC25. check the shaft for correct rotation	-	-	-	-
PC26. measure the resistance between stator windings to ensure it is as prescribed by the manufacturer	-	-	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC27. check that all phases of the electrical control panel has the recommended voltage supply	-	-	-	-
PC28. measure the voltage balance between all phases on the load side of the pump/ mixer control panel with pump/ mixer running to ensure it is as recommended	-	-	-	-
PC29. check the amperage draw on all phases of the motor	-	-	-	-
PC30. check the motor thermal protection control system for correct functioning	-	-	-	-
PC31. adjust or repair any loose or faulty electrical connections within the control panel	-	-	-	-
PC32. replace oil in the oil housing with the recommended grade of oil	-	-	-	-
PC33. replace the rotating and stationary impeller wear rings as required	-	-	-	-
PC34. carry out draw down test on the pump to ensure it pumps water at the prescribed Gallons Per Minute (GPM)	-	-	-	-
PC35. carry out pump shut-off head pressure test to check the pressure being produced by the pump	-	-	-	-
PC36. maintain the record of repair and maintenance	-	-	-	-
<i>Optimise resource utilisation</i>	5	5	-	5
PC37. optimise usage of various material in different tasks/ activities/ processes	-	-	-	-
PC38. optimise usage of water/ electricity/ energy in various tasks/ activities/ processes	-	-	-	-
PC39. connect electrical tools and equipment safely and turn off when not in use	-	-	-	-
PC40. segregate waste into different categories	-	-	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC41. dispose non-recyclable waste appropriately	-	-	-	-
PC42. deposit recyclable and reusable material at the identified location	-	-	-	-
NOS Total	30	40	-	30

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National Occupational Standards (NOS) Parameters

NOS Code	AGR/N1114
NOS Name	Carry out installation, repair and maintenance of submersible pump
Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Farm Machinery, Equipment Operation and Maintenance
NSQF Level	4
Credits	3
Version	3.0
Last Reviewed Date	30/05/2024
Next Review Date	30/05/2027
NSQC Clearance Date	30/05/2024

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AGR/N1142: Carry out re-winding of an electric motor

Description

This OS unit is about carrying out rewinding of an electric motor.

Scope

The scope covers the following :

- Disassemble and clean the electric motor
- Re-wind the electric motor

Elements and Performance Criteria

Disassemble and clean the electric motor

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

- PC1.** arrange the necessary tools and equipment for the rewinding of electric motor
- PC2.** disassemble the electric motor as per the SOP
- PC3.** collect the relevant winding data from the motor inscription plate such as number of slots, wire size, number of coils, number of turns per coil, critical dimensions, bracing and insulation parameters
- PC4.** burn the existing windings in the motor core as per the SOP
- PC5.** strip out the burnt windings from the motor
- PC6.** conduct a core-loss test to check the integrity of the core insulation
- PC7.** clean gaps in the motor while ensuring no damage to stator lamellas
- PC8.** remove the bearings safely
- PC9.** clean the motor housing
- PC10.** scratch or sandblast the stator lamellas

Re-wind the electric motor

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

- PC11.** insert isolate paper in the stator
- PC12.** prepare new coils maintaining the required level of wire tension
- PC13.** place coils in the stator
- PC14.** wire coils as per the original winding
- PC15.** remove the isolate paper from the stator
- PC16.** apply varnish on the new windings
- PC17.** solder copper wires as per the SOP
- PC18.** connect the coil wires with the motor winding
- PC19.** isolate coil wires using a heat shrink tube
- PC20.** bind the coils with the stator lacing thread
- PC21.** replace the old bearings with the new ones
- PC22.** apply grease on the axle of rotor, bearing bed and rotor axle

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- PC23.** mount the bearings on the axle and rotor axle on pulley
- PC24.** test the coil windings for correct resistance using a multimeter
- PC25.** assemble the electric motor as per the original design

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** various components of an electric motor
- KU2.** the correct process to disassemble and re-assemble an electric motor during the re-winding operation
- KU3.** tools and equipment required for disassembling, assembling and re-winding an electric motor
- KU4.** relevant winding data to be collected from the motor inscription plate while disassembling the motor such as number of slots, wire size, number of coils, number of turns per coil, critical dimensions, bracing and insulation parameters
- KU5.** correct way of burning the existing windings in the motor core while protecting the core insulation
- KU6.** how to conduct a core-loss test to check the integrity of the core insulation
- KU7.** how to carry out soldering and sandblasting
- KU8.** various types of material used in the rewinding operations
- KU9.** the process of preparing new coils and placing them in the motor
- KU10.** the concept and process of electrical isolation

Generic Skills (GS)

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

- GS1.** communicate clearly and politely
- GS2.** write work-related notes and observations
- GS3.** read the relevant literature to get latest updates about the field of work
- GS4.** listen attentively to understand the speaker
- GS5.** take decisions pertaining to the area of work
- GS6.** identify problems that may disrupt work and take preventive measures within the limits of authority
- GS7.** plan and schedule tasks for effective time-management
- GS8.** evaluate all possible solutions to a problem to select the best one

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Disassemble and clean the electric motor</i>	12	15	-	15
PC1. arrange the necessary tools and equipment for the rewinding of electric motor	-	-	-	-
PC2. disassemble the electric motor as per the SOP	-	-	-	-
PC3. collect the relevant winding data from the motor inscription plate such as number of slots, wire size, number of coils, number of turns per coil, critical dimensions, bracing and insulation parameters	-	-	-	-
PC4. burn the existing windings in the motor core as per the SOP	-	-	-	-
PC5. strip out the burnt windings from the motor	-	-	-	-
PC6. conduct a core-loss test to check the integrity of the core insulation	-	-	-	-
PC7. clean gaps in the motor while ensuring no damage to stator lamellas	-	-	-	-
PC8. remove the bearings safely	-	-	-	-
PC9. clean the motor housing	-	-	-	-
PC10. scratch or sandblast the stator lamellas	-	-	-	-
<i>Re-wind the electric motor</i>	18	25	-	15
PC11. insert isolate paper in the stator	-	-	-	-
PC12. prepare new coils maintaining the required level of wire tension	-	-	-	-
PC13. place coils in the stator	-	-	-	-
PC14. wire coils as per the original winding	-	-	-	-
PC15. remove the isolate paper from the stator	-	-	-	-
PC16. apply varnish on the new windings	-	-	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC17. solder copper wires as per the SOP	-	-	-	-
PC18. connect the coil wires with the motor winding	-	-	-	-
PC19. isolate coil wires using a heat shrink tube	-	-	-	-
PC20. bind the coils with the stator lacing thread	-	-	-	-
PC21. replace the old bearings with the new ones	-	-	-	-
PC22. apply grease on the axle of rotor, bearing bed and rotor axle	-	-	-	-
PC23. mount the bearings on the axle and rotor axle on pulley	-	-	-	-
PC24. test the coil windings for correct resistance using a multimeter	-	-	-	-
PC25. assemble the electric motor as per the original design	-	-	-	-
NOS Total	30	40	-	30

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National Occupational Standards (NOS) Parameters

NOS Code	AGR/N1142
NOS Name	Carry out re-winding of an electric motor
Sector	Agriculture
Sub-Sector	Agriculture Crop Production
Occupation	Farm Machinery, Equipment Operation and Maintenance
NSQF Level	4
Credits	2
Version	2.0
Last Reviewed Date	30/05/2024
Next Review Date	30/05/2027
NSQC Clearance Date	30/05/2024

Qualification Pack

AGR/N9903: Maintain health and safety at the workplace

Description

This OS is about maintaining health and safety of self and other co-workers at the workplace

Scope

The scope covers the following :

- Maintain personal hygiene
- Maintain clean and safe workplace
- Administer appropriate emergency procedures

Elements and Performance Criteria

Maintain personal hygiene

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

- PC1.** wash hands, legs and face with soap/alcohol based sanitizer at reasonable intervals
- PC2.** wash the worn clothes with soap and sun dry before use next time
- PC3.** ensure the face is covered with mask or three layers of cloth-piece
- PC4.** follow the workplace sanitization norms including distancing from sick people

Maintain clean and safe workplace

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

- PC5.** carry out basic safety checks before operation of all tools, implements, and machinery and report identified hazards to the supervisor
- PC6.** wear appropriate Personal Protective Equipment (PPE) while performing work in accordance with the workplace policy
- PC7.** follow the instructions mentioned on the labels of chemicals/pesticides/fumigants etc to avoid hazards
- PC8.** assess risks prior to performing manual handling jobs, and work according to currently recommended safe practices
- PC9.** sanitize equipment, tools and machinery before and after use
- PC10.** use equipment and materials safely and correctly and return the same to designated storage after use
- PC11.** dispose waste safely and correctly in the designated area
- PC12.** recognize risks to bystanders and take required action to reduce the risks
- PC13.** work in a manner which minimizes environmental damage, ensuring all procedures and instructions for controlling risks are followed
- PC14.** report any accidents, incidents or problems without delay to an appropriate person and take necessary immediate action to reduce further danger
- PC15.** follow government / workplace advisories incase of outbreak of any disease/disaster

Administer appropriate emergency procedures

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

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- PC16.** follow procedures for dealing with accidents, fires and emergencies, including communicating location and directions to the location of emergency, as per the workplace requirements
- PC17.** use emergency equipment in accordance with manufacturer's specifications and workplace requirements
- PC18.** provide treatment appropriate to the patient's injuries in accordance with recognized first aid techniques
- PC19.** recover (if practical), clean, inspect/test, refurbish, replace and store the first aid equipment as appropriate
- PC20.** report details of first aid administered in accordance with workplace procedures

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** relevant legislation, standards, policies, and procedures at work
- KU2.** relevant health and safety requirements applicable to the work environment
- KU3.** own job role and responsibilities and sources of information pertaining to work
- KU4.** who to approach for support in order to obtain work related information, clarifications and support
- KU5.** importance of following health, hygiene, safety and quality standards and the impact of not following the standards on consumers and the business
- KU6.** personal hygiene and fitness requirement
- KU7.** importance of sanitization of the workplace
- KU8.** types of Personal Protective Equipment (PPE) required at the workplace and their importance
- KU9.** the correct and safe way to use materials and equipment required for the work
- KU10.** the importance of good housekeeping at the workplace
- KU11.** safe waste disposal methods
- KU12.** methods for minimizing environmental damage during work
- KU13.** the risks to health and safety including contagious diseases and the measures to be taken to control those risks in the area of work
- KU14.** workplace procedures and requirements for the prevention and treatment of workplace injuries/illnesses.
- KU15.** basic emergency first aid procedure
- KU16.** local emergency services
- KU17.** why accidents, incidents and problems should be reported and the appropriate actions to be taken

Generic Skills (GS)

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

- GS1.** record the data as per the requirement
- GS2.** report problems to the appropriate personnel in a timely manner

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- GS3.** read instruction manual for hand tool and equipments
- GS4.** communicate clearly and effectively with co-workers, and other stakeholders
- GS5.** comprehend information shared by senior people and experts
- GS6.** make decisions pertaining to personal hygiene and safety
- GS7.** schedule daily activities and draw up priorities
- GS8.** manage relationships with co-workers, manager and other stakeholders
- GS9.** assess situation and identify appropriate control measures

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Maintain personal hygiene</i>	10	5	-	10
PC1. wash hands, legs and face with soap/alcohol based sanitizer at reasonable intervals	-	-	-	-
PC2. wash the worn clothes with soap and sun dry before use next time	-	-	-	-
PC3. ensure the face is covered with mask or three layers of cloth-piece	-	-	-	-
PC4. follow the workplace sanitization norms including distancing from sick people	-	-	-	-
<i>Maintain clean and safe workplace</i>	15	15	-	15
PC5. carry out basic safety checks before operation of all tools, implements, and machinery and report identified hazards to the supervisor	-	-	-	-
PC6. wear appropriate Personal Protective Equipment (PPE) while performing work in accordance with the workplace policy	-	-	-	-
PC7. follow the instructions mentioned on the labels of chemicals/pesticides/fumigants etc to avoid hazards	-	-	-	-
PC8. assess risks prior to performing manual handling jobs, and work according to currently recommended safe practices	-	-	-	-
PC9. sanitize equipment, tools and machinery before and after use	-	-	-	-
PC10. use equipment and materials safely and correctly and return the same to designated storage after use	-	-	-	-
PC11. dispose waste safely and correctly in the designated area	-	-	-	-
PC12. recognize risks to bystanders and take required action to reduce the risks	-	-	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. work in a manner which minimizes environmental damage, ensuring all procedures and instructions for controlling risks are followed	-	-	-	-
PC14. report any accidents, incidents or problems without delay to an appropriate person and take necessary immediate action to reduce further danger	-	-	-	-
PC15. follow government / workplace advisories incase of outbreak of any disease/disaster	-	-	-	-
<i>Administer appropriate emergency procedures</i>	15	5	-	10
PC16. follow procedures for dealing with accidents, fires and emergencies, including communicating location and directions to the location of emergency, as per the workplace requirements	-	-	-	-
PC17. use emergency equipment in accordance with manufacturer's specifications and workplace requirements	-	-	-	-
PC18. provide treatment appropriate to the patient's injuries in accordance with recognized first aid techniques	-	-	-	-
PC19. recover (if practical), clean, inspect/test, refurbish, replace and store the first aid equipment as appropriate	-	-	-	-
PC20. report details of first aid administered in accordance with workplace procedures	-	-	-	-
NOS Total	40	25	-	35

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	AGR/N9903
NOS Name	Maintain health and safety at the workplace
Sector	Agriculture
Sub-Sector	Generic
Occupation	Generic
NSQF Level	4
Credits	1
Version	4.0
Last Reviewed Date	22/10/2024
Next Review Date	22/10/2027
NSQC Clearance Date	22/10/2024

Qualification Pack

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:

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- 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.

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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

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- 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

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Introduction to Employability Skills</i>	1	1	-	-
PC1. identify employability skills required for jobs in various industries	-	-	-	-
PC2. identify and explore learning and employability portals	-	-	-	-
<i>Constitutional values – Citizenship</i>	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	-	-	-	-
<i>Becoming a Professional in the 21st Century</i>	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	-	-	-	-
<i>Basic English Skills</i>	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	-	-	-	-
<i>Career Development & Goal Setting</i>	1	2	-	-

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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	-	-	-	-
<i>Communication Skills</i>	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	-	-	-	-
<i>Diversity & Inclusion</i>	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	-	-	-	-
<i>Financial and Legal Literacy</i>	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	-	-	-	-
<i>Essential Digital Skills</i>	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	-	-	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Entrepreneurship</i>	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	-	-	-	-
<i>Customer Service</i>	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	-	-	-	-
<i>Getting ready for apprenticeship & Jobs</i>	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	-	-

Qualification Pack

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	18/02/2025
Next Review Date	18/02/2028
NSQC Clearance Date	18/02/2025

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) (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 PC.
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).
4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training center based on these criteria.
5. In case of successfully passing only certain number of NOSs, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack.
6. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

Minimum Aggregate Passing % at QP Level : 70

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(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
AGR/N1113.Carry out installation, repair and maintenance of the tubewell irrigation system	30	40	-	30	100	25
AGR/N1114.Carry out installation, repair and maintenance of submersible pump	30	40	-	30	100	25
AGR/N1142.Carry out re-winding of an electric motor	30	40	-	30	100	30
AGR/N9903.Maintain health and safety at the workplace	40	25	-	35	100	15
DGT/VSQ/N0102.Employability Skills (60 Hours)	20	30	0	0	50	5
Total	150	175	-	125	450	100

Qualification Pack

Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training
PwD	Persons with Disabilities
PPE	Personal Protective Equipment
PPE	Personal Protective Equipment
PPE	Personal Protective Equipment

Qualification Pack

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.

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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.