Qualification Pack

Assistant Technician - Smart Meter

QP Code: ELE/Q5905

Version: 2.0

NSQF Level: 3

Electronics Sector Skills Council of India || 155, 2nd Floor, ESC House Okhla Industrial Area-Phase 3
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Qualification Pack

ELE/Q5905: Assistant Technician - Smart Meter

Brief Job Description

The incumbent at work is responsible for installation, replacement and testing of smart energy, water and gas meters at consumer's place by following organizational procedures and standards.

Personal Attributes

The individual is responsible for installing, replacing, and testing smart energy, water, and gas meters at consumer locations while following the organizations procedures and standards.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. ELE/N5908: Installation and troubleshoot of smart energy meter
2. ELE/N5909: Installation & troubleshoot of Smart Water Meter
3. ELE/N5910: Installation & troubleshoot of Smart Gas Meter
4. ELE/N1007: Apply health and safety practices at the workplace..
5. DGT/VSQ/N0101: Employability Skills (30 Hours)

Qualification Pack (QP) Parameters

Sector	Electronics
Sub-Sector	Consumer Electronics & IT Hardware
Occupation	Installation-S&L
Country	India
NSQF Level	3
Credits	14
Aligned to NCO/ISCO/ISIC Code	NCO-2015/9623.0300

Qualification Pack

Minimum Educational Qualification & Experience	10th grade pass (10th Grade or equivalent) with NA of experience OR 8th grade pass (8th Grade) with 3 Years of experience Relevant Experience in Electronics Domain. OR Certificate-NSQF (Certificate-NSQF (Level-2 in relevant domain)) with 1.5 years of experience Relevant Experience in Electronics Domain.
Minimum Level of Education for Training in School	8th Class
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	NA
Next Review Date	12/03/2029
NSQC Approval Date	12/03/2026
Version	2.0
Reference code on NQR	QG-03-EL-05073-2026-V1-ESSCI
NQR Version	1

Remarks:

NA

Qualification Pack

ELE/N5908: Installation and troubleshoot of smart energy meter

Description

This NOS is about to installing, removing or changing and testing smart meters and meter supportive equipment that are used to record energy consumption in residential, commercial or industrial units.

Scope

The scope covers the following :

- Preparing for energy meter installation or replacement work
- Installing a single or three phase meter appropriately
- Recording meter details and readings

Elements and Performance Criteria

Preparing for energy meter installation or replacement work

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

PC1. Discuss the role of smart meters in modern energy systems, and their integration with AMI (Advanced Metering Infrastructure) including remote reading and monitoring.

PC2. describe the commonly used smart meter communication technologies (RF Mesh, 4G, NB-IoT) and their importance in ensuring reliable meter connectivity during installation

PC3. obtain the information and details of the consumer for installation work

PC4. collect the necessary tools and equipment required for installation of smart energy meter including mobile-based configuration devices and handheld communication testers

PC5. check the functionality of tools and equipment before use

PC6. check that the distance between the poles or cables is correct and underground and/or overhead cables are laid correctly

PC7. identify the reason such as stoppage of meter, erratic consumption output, broken seal, burning or damage of meter, service disconnection for changing the energy meter in case of replacement of meter

PC8. locate the area inside or outside the customer’s premise and check that the identified area is accessible to carry out installation, meter testing, commissioning, reading, recording and maintenance after assessing possible risks and ensure the location has adequate network or signal strength for smart meter communication

PC9. inspect the facility’s wiring system and recognize any possible risks such as faulty circuit, loose ends, naked wires, etc.

PC10. inspect the facility’s wiring system and recognize any possible risks such as faulty circuit, loose ends, naked wires, etc.communication module or SIM-based requirement in the replacement meter

PC11. use appropriate personal protective equipment (PPE) for specific tasks and work conditions, contaminant (concentration w.r.t air) requirements and severity of hazard while conforming to the Indian/International standards

Installing or replacing a single or three phase meter

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

PC12. install or replace the energy meter and required supportive equipment such as meter box, junction box, distribution bus bar, etc. using appropriate insulated tools and devices as per organizational procedures and ensure the meter is positioned to support stable RF/4G/NB-IoT communication

PC13. ensure the energy meter is correct, examined and tested, and meets all the parameters and specifications set by the Bureau of Indian Standards (BIS)

PC14. equip the energy meter with various anti-tampering features as per regulations and organizational procedures and verify that digital tamper logs are active and readable

PC15. ensure that the energy meter is protected from various types of external factors such as magnetic induction, vibration, electrostatic discharge, switching transients, surge voltages, oblique suspension and harmonics in accordance with relevant regulations

PC16. check the energy meter for earth leakage indication as per Central Electricity Authority Regulations, 2006

PC17. test and calibrate the energy meter using appropriate testing devices in line with organizational quality standards and regulations and perform a basic communication health check to ensure the meter is sending data

PC18. check that replaced meter is working properly and customer's problems are duly resolved efficiently and confirm that the meter gets registered and appears active on the AMI/HES system

PC19. ensure that energy meter display is working properly and showing the power usage details properly

PC20. escalate unresolved problems to appropriate authority for rectifications including cases where meter communication or AMI registration fails

Recording meter details and readings

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

PC21. record the meter data and maintain all the information related to the consumer's energy meter including mapping the meter to the consumer account using the utility's digital/AMI system

PC22. verify the accuracy of the meter data and cross-check with the data received through the smart meter communication network

PC23. maintain consumer meters' account history, installation date and testing details, calibration and replacement of meters in line with organizational standards and policies

PC24. fill the installation or service report and take acknowledgment from the customer using digital or app-based acknowledgment methods wherever applicable

PC25. document the work completed for future records including uploading installation photos and GPS-tagged location if required by the utility

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. health and safety requirements applicable in the workplace

KU2. various types of health and safety hazards commonly present in the work environment such as physical hazards, electrical hazards, fire hazards, equipment related hazards, health hazards, etc.

KU3. methods of accident prevention

KU4. importance of using protective clothing/equipment while working

KU5. application of basic principles of electricity in energy meters

KU6. electrical units used to measure energy outputs, for example KVA, KWH, etc.

KU7. relevant terms, signs, symbols and other graphical representations and their respective interpretations

KU8. installation, operation and maintenance procedures of energy meter

KU9. how to obtain job specifications or work order from responsible authority

KU10. how to plan the work correctly using various safety control measures i.e. signs and barriers, demarcation of work area, control and removal of hazards and contamination protection

KU11. Safe Operating Procedure of using tools and equipment required during tasks

KU12. • various types of consumer energy meters and their uses
• Types of meters: single phase meter and three phase meter, CT meter and HT meters, AMR or AMI meters

KU13. different components of a smart energy meter and their functions

KU14. difference between LV and HT meters and their respective uses in the power sector

KU15. • required meter specifications and selection parameters as per Indian Standards
• Energy meter selection parameters: specification of meters, immunity to external factors, sealing points and functional requirements, etc.
• Energy meter specification: Standard Reference Voltage, Voltage Range, Standard Frequency, Standard Basic Current, Accuracy Class, Starting Current and Maximum Current, Power Factor Range, Power Frequency Withstand Voltage, Impulse Voltage Withstand Test for 1.2/50 micro sec,

KU16. • compliance with energy meter standards set by apex regulators
• Regulators: Bureau of Indian Standards (BIS), British Standards (BS), International Electro-technical Commission (IEC) Standards, etc.

KU17. how to select suitable location for installing an energy meter

KU18. • importance of checking manufacturer's sealing points prior to installation
• Sealing points: meter body or cover, meter terminal cover, meter test terminal block, meter cabinet

KU19. standard features of a correct energy meter as defined by regulating body e.g. specification of meters, immunity to external factors, sealing points and functional requirements

KU20. how to place various anti-tampering features in an energy meter

KU21. energy meters testing procedures

KU22. how to recognize and report inaccurate work instructions and documentation to designated personnel

KU23. how to record metered data, maintain information database and verify accuracy of compiled data

Generic Skills (GS)

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

GS1. record the information related to work and processes

GS2. write reports and observations related to work in English/regional language

GS3. read and interpret and process flowchart for all operations

GS4. read manuals and operation documents to understand the Equipment used into operation

GS5. discuss task lists, schedules and activities with the seniors and team members

GS6. follow organization rule-based decision-making process

GS7. take decisions with systematic course of actions and/or response

GS8. plan and organize tasks to meet deadlines

GS9. find ways of modifying difficult operating stages to make it operation friendly

GS10. apply domain information to set and define operation parameters that ensures economy and quality of the product

GS11. analyze the complexity of work to determine if it can be successfully carried out or needs to be referred to a superior/specialist

GS12. recognize a workplace problem and take suitable action to resolve it

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Preparing for energy meter installation or replacement work	**17**	**22**	**-**	**-**
PC1. Discuss the role of smart meters in modern energy systems, and their integration with AMI (Advanced Metering Infrastructure) including remote reading and monitoring.	2	1	-	-
PC2. describe the commonly used smart meter communication technologies (RF Mesh, 4G, NB-IoT) and their importance in ensuring reliable meter connectivity during installation	2	1	-	-
PC3. obtain the information and details of the consumer for installation work	1	1	-	-
PC4. collect the necessary tools and equipment required for installation of smart energy meter including mobile-based configuration devices and handheld communication testers	1	2	-	-
PC5. check the functionality of tools and equipment before use	1	2	-	-
PC6. check that the distance between the poles or cables is correct and underground and/or overhead cables are laid correctly	2	2	-	-
PC7. identify the reason such as stoppage of meter, erratic consumption output, broken seal, burning or damage of meter, service disconnection for changing the energy meter in case of replacement of meter	1	3	-	-
PC8. locate the area inside or outside the customer's premise and check that the identified area is accessible to carry out installation, meter testing, commissioning, reading, recording and maintenance after assessing possible risks and ensure the location has adequate network or signal strength for smart meter communication	2	3	-	-
PC9. inspect the facility's wiring system and recognize any possible risks such as faulty circuit, loose ends, naked wires, etc.	2	3	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. inspect the facility's wiring system and recognize any possible risks such as faulty circuit, loose ends, naked wires, etc.communication module or SIM-based requirement in the replacement meter	2	3	-	-
PC11. use appropriate personal protective equipment (PPE) for specific tasks and work conditions, contaminant (concentration w.r.t air) requirements and severity of hazard while conforming to the Indian/International standards	1	1	-	-
Installing or replacing a single or three phase meter	**17**	**28**	**-**	**-**
PC12. install or replace the energy meter and required supportive equipment such as meter box, junction box, distribution bus bar, etc. using appropriate insulated tools and devices as per organizational procedures and ensure the meter is positioned to support stable RF/4G/NB-IoT communication	4	8	-	-
PC13. ensure the energy meter is correct, examined and tested, and meets all the parameters and specifications set by the Bureau of Indian Standards (BIS)	2	1	-	-
PC14. equip the energy meter with various anti-tampering features as per regulations and organizational procedures and verify that digital tamper logs are active and readable	2	4	-	-
PC15. ensure that the energy meter is protected from various types of external factors such as magnetic induction, vibration, electrostatic discharge, switching transients, surge voltages, oblique suspension and harmonics in accordance with relevant regulations	2	4	-	-
PC16. check the energy meter for earth leakage indication as per Central Electricity Authority Regulations, 2006	1	2	-	-
PC17. test and calibrate the energy meter using appropriate testing devices in line with organizational quality standards and regulations and perform a basic communication health check to ensure the meter is sending data	3	5	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC18. check that replaced meter is working properly and customer's problems are duly resolved efficiently and confirm that the meter gets registered and appears active on the AMI/HES system	1	2	-	-
PC19. ensure that energy meter display is working properly and showing the power usage details properly	1	1	-	-
PC20. escalate unresolved problems to appropriate authority for rectifications including cases where meter communication or AMI registration fails	1	1	-	-
Recording meter details and readings	**6**	**10**	**-**	**-**
PC21. record the meter data and maintain all the information related to the consumer's energy meter including mapping the meter to the consumer account using the utility's digital/AMI system	2	3	-	-
PC22. verify the accuracy of the meter data and cross-check with the data received through the smart meter communication network	1	2	-	-
PC23. maintain consumer meters' account history, installation date and testing details, calibration and replacement of meters in line with organizational standards and policies	1	2	-	-
PC24. fill the installation or service report and take acknowledgment from the customer using digital or app-based acknowledgment methods wherever applicable	1	2	-	-
PC25. document the work completed for future records including uploading installation photos and GPS-tagged location if required by the utility	1	1	-	-
NOS Total	**40**	**60**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	ELE/N5908
NOS Name	Installation and troubleshoot of smart energy meter
Sector	Electronics
Sub-Sector	Consumer Electronics & IT Hardware
Occupation	Installation-S&L
NSQF Level	3
Credits	4
Version	2.0
Last Reviewed Date	12/03/2026
Next Review Date	12/03/2029
NSQC Clearance Date	12/03/2026

ELE/N5909: Installation & troubleshoot of Smart Water Meter

Description

This NOS is about to installing, removing or changing and testing smart meters and meter supportive equipment that are used to record water consumption in residential, commercial or industrial units.

Scope

The scope covers the following :

- Preparing for meter installation or replacement work
- Installing a smart water meter appropriately
- Recording meter details and readings

Elements and Performance Criteria

Preparing for water meter installation or replacement work

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

PC1. Explain the scope of the NOS and outline current smart water metering technologies such as ultrasonic sensors, IoT connectivity and remote monitoring.

PC2. Describe the purpose of smart water meters and summarize their capabilities including accurate flow measurement, leak detection, tamper alerts and AMR/AMI integration.

PC3. Obtain the consumer’s information and installation requirements.

PC4. Collect the required tools and equipment, including mobile commissioning app and communication checker for IoT-enabled meters.

PC5. Check the functionality of all tools and equipment before use.

PC6. Verify that the main water line is laid correctly and adequate space is available for installation.

PC7. Identify the reason for meter replacement including issues such as communication failure, repeated no-read cases or sensor inaccuracy.

PC8. Assess the installation location for safety, accessibility and adequate signal strength for remote communication.

PC9. Use appropriate PPE as per task requirements and standards.

Installing or replacing a water meter

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

PC10. Connect additional pipes or fittings to the water line if required.

PC11. Install or replace the tested water meter and supporting equipment using proper tools.

PC12. Ensure the water meter meets BIS specifications and installation standards.

PC13. Tighten all water connections and secure the meter with a protective lid.

PC14. Equip the meter with anti-tampering features and activate magnetic tamper and unauthorized-opening detection.

PC15. Conduct leakage tests to confirm water-tight connections.

PC16. Test and calibrate the water meter using appropriate testing devices and verify electronic calibration values for ultrasonic smart meters.

PC17. Verify that the replaced meter works properly and confirms successful sync with the AMR/AMI system.

PC18. Ensure the meter display functions correctly and validate that physical and digital readings match.

PC19. Escalate unresolved technical or communication issues to the appropriate authority.

Recording meter details and readings

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

PC20. Record consumer meter details including device ID, communication status and network parameters.

PC21. Verify the accuracy of meter data.

PC22. Maintain consumer meter history including installation, testing, calibration and replacement details.

PC23. Fill the installation or service report and take customer acknowledgment including geotagged installation proof and commissioning logs.

PC24. Document all completed work for future reference.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. relevant legislation, standards, policies, and procedures followed in the organization

KU2. importance of using personal protective equipment (PPE) against possible hazards as described in the organizational health and safety guidelines and relevant regulations

KU3. basic principles of water meters working

KU4. relevant terms, signs, symbols and other graphical representations and their respective interpretations

KU5. installation, operation and maintenance procedures of water meter

KU6. how to obtain job specifications or work order from responsible authority

KU7. how to plan the work correctly using various safety control measures i.e. signs and barriers, demarcation of work area, control and removal of hazards and contamination protection

KU8. Safe Operating Procedure of using tools and equipment required during tasks

KU9. • various types of water meters and their uses
• Types of water meters: Positive Displacement Meters (PD Meters), Velocity Flow Meters, Electromagnetic Water Meters and Ultrasonic Water Meters

KU10. different components of a smart water meter and their functions

KU11. required meter specifications and selection parameters as per Indian Standards

KU12. compliance with water meter standards set by Bureau of Indian Standards (BIS)

KU13. how to select suitable location for installing a water meter

KU14. standard features of a correct water meter as defined by regulating body e.g. specification of meters, immunity to external factors, sealing points and functional requirements

KU15. how to place various anti-tampering features in water meter

KU16. smart water meters testing procedures

KU17. how to recognize and report inaccurate work instructions and documentation to designated personnel

KU18. how to record metered data, maintain information database and verify accuracy of compiled data

Generic Skills (GS)

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

GS1. record the information related to work and processes

GS2. write reports and observations related to work in English/regional language

GS3. read and interpret and process flowchart for all operations

GS4. read manuals and operation documents to understand the Equipment used into operation

GS5. discuss task lists, schedules and activities with the seniors and team members

GS6. follow organization rule-based decision-making process

GS7. take decisions with systematic course of actions and/or response

GS8. plan and organize tasks to meet deadlines

GS9. find ways of modifying difficult operating stages to make it operation friendly

GS10. apply domain information to set and define operation parameters that ensures economy and quality of the product

GS11. analyze the complexity of work to determine if it can be successfully carried out or needs to be referred to a superior/specialist

GS12. recognize a workplace problem and take suitable action to resolve it

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Preparing for water meter installation or replacement work	**13**	**16**	**-**	**-**
PC1. Explain the scope of the NOS and outline current smart water metering technologies such as ultrasonic sensors, IoT connectivity and remote monitoring.	1	1	-	-
PC2. Describe the purpose of smart water meters and summarize their capabilities including accurate flow measurement, leak detection, tamper alerts and AMR/AMI integration.	1	1	-	-
PC3. Obtain the consumer's information and installation requirements.	1	1	-	-
PC4. Collect the required tools and equipment, including mobile commissioning app and communication checker for IoT-enabled meters.	1	2	-	-
PC5. Check the functionality of all tools and equipment before use.	1	2	-	-
PC6. Verify that the main water line is laid correctly and adequate space is available for installation.	2	3	-	-
PC7. Identify the reason for meter replacement including issues such as communication failure, repeated no-read cases or sensor inaccuracy.	3	2	-	-
PC8. Assess the installation location for safety, accessibility and adequate signal strength for remote communication.	2	3	-	-
PC9. Use appropriate PPE as per task requirements and standards.	1	1	-	-
Installing or replacing a water meter	**21**	**34**	**-**	**-**
PC10. Connect additional pipes or fittings to the water line if required.	2	3	-	-
PC11. Install or replace the tested water meter and supporting equipment using proper tools.	4	8	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. Ensure the water meter meets BIS specifications and installation standards.	2	1	-	-
PC13. Tighten all water connections and secure the meter with a protective lid.	2	3	-	-
PC14. Equip the meter with anti-tampering features and activate magnetic tamper and unauthorized-opening detection.	2	4	-	-
PC15. Conduct leakage tests to confirm water-tight connections.	2	4	-	-
PC16. Test and calibrate the water meter using appropriate testing devices and verify electronic calibration values for ultrasonic smart meters.	3	5	-	-
PC17. Verify that the replaced meter works properly and confirms successful sync with the AMR/AMI system.	1	2	-	-
PC18. Ensure the meter display functions correctly and validate that physical and digital readings match.	2	2	-	-
PC19. Escalate unresolved technical or communication issues to the appropriate authority.	1	2	-	-
Recording meter details and readings	**6**	**10**	**-**	**-**
PC20. Record consumer meter details including device ID, communication status and network parameters.	2	3	-	-
PC21. Verify the accuracy of meter data.	1	2	-	-
PC22. Maintain consumer meter history including installation, testing, calibration and replacement details.	1	2	-	-
PC23. Fill the installation or service report and take customer acknowledgment including geotagged installation proof and commissioning logs.	1	2	-	-
PC24. Document all completed work for future reference.	1	1	-	-
NOS Total	**40**	**60**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	ELE/N5909
NOS Name	Installation & troubleshoot of Smart Water Meter
Sector	Electronics
Sub-Sector	Consumer Electronics & IT Hardware
Occupation	Installation-S&L
NSQF Level	3
Credits	4
Version	2.0
Last Reviewed Date	12/03/2026
Next Review Date	12/03/2029
NSQC Clearance Date	12/03/2026

ELE/N5910: Installation & troubleshoot of Smart Gas Meter

Description

This NOS is about to installing, removing or changing and testing smart meters and meter supportive equipment that are used to record gas consumption in residential, commercial or industrial units.

Scope

The scope covers the following :

- Preparing for gas meter installation or replacement work
- Installing a gas meter appropriately
- Recording meter details and readings

Elements and Performance Criteria

Preparing for gas meter installation or replacement work

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

PC1. Explain the scope of the NOS and outline current smart gas meter technologies such as IoT connectivity, ultrasonic gas metering and remote monitoring.

PC2. Describe the purpose of smart gas metering and summarize capabilities like leak detection, pressure monitoring, tamper alerts and AMR/AMI integration.

PC3. Obtain consumer information and installation requirements.

PC4. Collect required tools and equipment including mobile commissioning app and IoT communication checker.

PC5. Check functionality of all tools and equipment before use.

PC6. Verify that the main gas line is laid correctly as per standards.

PC7. Identify the reason for meter replacement including communication failure, repeated no-read events or sensor malfunction.

PC8. Assess the installation location for safety, accessibility and adequate network strength for remote communication.

PC9. Use appropriate PPE as per task requirements and standards.

Installing or replacing a gas meter

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

PC10. Ensure the main gas pipeline valves are fully closed before starting work.

PC11. Drill the required wall opening to guide the gas line into the kitchen.

PC12. Measure and cut the pipes as required.

PC13. Mount the tested gas meter and supportive equipment using proper tools

PC14. Connect the main gas pipeline and guide the outlet pipe into the kitchen.

PC15. Ensure the gas meter meets BIS specifications and installation standards.

PC16. Tighten all pipe connections and ensure proper connection with the gas stove.

PC17. Equip the gas meter with anti-tampering features and activate magnetic tamper and unauthorized-opening alerts.

PC18. Conduct gas leakage tests to confirm safe installation.

PC19. Test and calibrate the gas meter using appropriate devices and verify electronic calibration where applicable for smart meters.

PC20. Verify that the replaced meter works properly and confirm successful sync with the AMR/AMI system.

PC21. Ensure the meter display works correctly and validate matching between physical and digital readings.

PC22. Escalate unresolved technical or communication issues to the authority.

Recording meter details and readings

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

PC23. Record meter data including device ID, network parameters and communication status.

PC24. Verify the accuracy of meter data.

PC25. Maintain consumer meter history including installation, testing, calibration and replacement details.

PC26. Fill the installation or service report and take customer acknowledgment including geotagged installation proof and commissioning logs.

PC27. Document all completed work for future records.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. relevant legislation, standards, policies, and procedures followed in the organization

KU2. importance of using personal protective equipment (PPE) against possible hazards as described in the organizational health and safety guidelines and relevant regulations

KU3. basic principles of gas meters working

KU4. relevant terms, signs, symbols and other graphical representations and their respective interpretations

KU5. installation, operation and maintenance procedures of gas meter

KU6. how to obtain job specifications or work order from responsible authority

KU7. how to plan the work correctly using various safety control measures i.e. signs and barriers, demarcation of work area, control and removal of hazards and contamination protection

KU8. Safe Operating Procedure of using tools and equipment required during tasks

KU9. • various types of gas meters and their uses
• Types of gas meters: Diaphragm/bellows meters, Rotary meters, Turbine meters, Orifice meters and Ultrasonic flow meters

KU10. different components of a smart gas meter and their functions

KU11. required meter specifications and selection parameters as per Indian Standards

KU12. compliance with gas meter standards set by Bureau of Indian Standards (BIS)

KU13. how to select suitable location for installing a gas meter

KU14. standard features of a correct gas meter as defined by regulating body e.g. specification of meters, immunity to external factors, sealing points and functional requirements

KU15. how to place various anti-tampering features in gas meter

KU16. smart gas meters testing procedures

KU17. how to recognize and report inaccurate work instructions and documentation to designated personnel

KU18. how to record metered data, maintain information database and verify accuracy of compiled data

Generic Skills (GS)

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

GS1. record the information related to work and processes

GS2. write reports and observations related to work in English/regional language

GS3. read and interpret and process flowchart for all operations

GS4. read manuals and operation documents to understand the Equipment used into operation

GS5. discuss task lists, schedules and activities with the seniors and team members

GS6. follow organization rule-based decision-making process

GS7. take decisions with systematic course of actions and/or response

GS8. plan and organize tasks to meet deadlines

GS9. find ways of modifying difficult operating stages to make it operation friendly

GS10. apply domain information to set and define operation parameters that ensures economy and quality of the product

GS11. analyze the complexity of work to determine if it can be successfully carried out or needs to be referred to a superior/specialist

GS12. recognize a workplace problem and take suitable action to resolve it

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Preparing for gas meter installation or replacement work	**13**	**16**	**-**	**-**
PC1. Explain the scope of the NOS and outline current smart gas meter technologies such as IoT connectivity, ultrasonic gas metering and remote monitoring.	1	1	-	-
PC2. Describe the purpose of smart gas metering and summarize capabilities like leak detection, pressure monitoring, tamper alerts and AMR/AMI integration.	1	1	-	-
PC3. Obtain consumer information and installation requirements.	1	1	-	-
PC4. Collect required tools and equipment including mobile commissioning app and IoT communication checker.	1	2	-	-
PC5. Check functionality of all tools and equipment before use.	1	2	-	-
PC6. Verify that the main gas line is laid correctly as per standards.	2	3	-	-
PC7. Identify the reason for meter replacement including communication failure, repeated no-read events or sensor malfunction.	3	2	-	-
PC8. Assess the installation location for safety, accessibility and adequate network strength for remote communication.	2	3	-	-
PC9. Use appropriate PPE as per task requirements and standards.	1	1	-	-
Installing or replacing a gas meter	**21**	**34**	**-**	**-**
PC10. Ensure the main gas pipeline valves are fully closed before starting work.	1	1	-	-
PC11. Drill the required wall opening to guide the gas line into the kitchen.	2	4	-	-
PC12. Measure and cut the pipes as required.	2	4	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. Mount the tested gas meter and supportive equipment using proper tools	3	5	-	-
PC14. Connect the main gas pipeline and guide the outlet pipe into the kitchen.	2	4	-	-
PC15. Ensure the gas meter meets BIS specifications and installation standards.	1	1	-	-
PC16. Tighten all pipe connections and ensure proper connection with the gas stove.	1	2	-	-
PC17. Equip the gas meter with anti-tampering features and activate magnetic tamper and unauthorized-opening alerts.	2	3	-	-
PC18. Conduct gas leakage tests to confirm safe installation.	2	3	-	-
PC19. Test and calibrate the gas meter using appropriate devices and verify electronic calibration where applicable for smart meters.	2	4	-	-
PC20. Verify that the replaced meter works properly and confirm successful sync with the AMR/AMI system.	1	1	-	-
PC21. Ensure the meter display works correctly and validate matching between physical and digital readings.	1	1	-	-
PC22. Escalate unresolved technical or communication issues to the authority.	1	1	-	-
Recording meter details and readings	**6**	**10**	**-**	**-**
PC23. Record meter data including device ID, network parameters and communication status.	2	3	-	-
PC24. Verify the accuracy of meter data.	1	2	-	-
PC25. Maintain consumer meter history including installation, testing, calibration and replacement details.	1	2	-	-
PC26. Fill the installation or service report and take customer acknowledgment including geotagged installation proof and commissioning logs.	1	2	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC27. Document all completed work for future records.	1	1	-	-
NOS Total	**40**	**60**	**-**	**-**

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	ELE/N5910
NOS Name	Installation & troubleshoot of Smart Gas Meter
Sector	Electronics
Sub-Sector	Consumer Electronics & IT Hardware
Occupation	Installation-S&L
NSQF Level	3
Credits	4
Version	2.0
Last Reviewed Date	12/03/2026
Next Review Date	12/03/2029
NSQC Clearance Date	12/03/2026

ELE/N1007: Apply health and safety practices at the workplace..

Description

This NOS unit is about knowledge and practices relating to health, safety and security that candidates need to use in the workplace.

Scope

The scope covers the following :

- Deal with workplace hazards
- Apply fire safety practices
- follow emergencies resue and first aid procedures
- Effective waste management recycling practices

Elements and Performance Criteria

Deal with workplace hazards

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

PC1. identify job-site hazards and possible causes of accident in the workplace

PC2. perform work complying to organizational safe working practices and observing hazard signs displayed on containers, equipment and in various work areas such as inside buildings, in open areas and public spaces, etc.

PC3. use appropriate personal protective equipment (PPE) for specific tasks and work conditions, contaminant (concentration w.r.t air) requirements and severity of hazard while conforming to the Indian/International standards

PC4. follow standard safety procedures while handling tool, equipment, hazardous substances and while working in hazardous environments

PC5. dispose electronic waste (such as toxins; metals such as lead, cadmium, barium; flame retardant plastics, welding slag etc.) as per industry approved techniques

PC6. avoid damage of components due to negligence in electrostatic discharge (ESD) procedures

PC7. locate general health and safety equipment in the workplace such as fire extinguishers; first aid equipment; safety instruments, clothing and installations (fire exits, exhaust fans)

PC8. maintain appropriate posture while handling heavy objects

PC9. apply good housekeeping practices at all times

Apply fire safety practices

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

PC10. take preventive measures to prevent fire hazards

PC11. • use appropriate fire extinguishers for different types of fires
• Types of fires: Class A: e.g. ordinary solid combustibles, such as wood, paper, cloth, plastic, charcoal, etc.; Class B: flammable liquids and gases, such as gasoline, propane, diesel fuel, tar, cooking oil, and similar substances; Class C: e.g. electrical equipment such as appliances, wiring, breaker panels, etc. (These categories of fires become Class A, B, and D fires when the electrical equipment that initiated the fire is no l

PC12. exhibit rescue and first-aid techniques in case of fire or electrocution

Follow emergencies, rescue and first-aid procedures

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

PC13. administer appropriate first aid to victims in case of bleeding, burns, choking, electric shock, poisoning etc.

PC14. administer first aid to victims in case of a heart attack or cardiac arrest due to electric shock,

PC15. participate regularly in emergency procedures such as raising alarm, safe/efficient, evacuation, correct means of taking shelter and escaping, correct assembly point, roll call, correct return to work

PC16. use correct method to move injured people and others during an emergency

Effective waste management/recycling practices

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

PC17. identify recyclable and non-recyclable, and hazardous waste generated

PC18. segregate waste into different categories

PC19. ensure disposal of non-recyclable waste appropriately

PC20. deposit non-recyclable and reusable material at identified location

PC21. follow processes specified for disposal of hazardous wast

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. Knowledge of workplace hazards, risk identification, and accident causes.

KU2. Understanding of safe working practices and hazard sign recognition.

KU3. Knowledge of PPE selection based on task, hazard level, and standards

KU4. Understanding of safety procedures for handling tools, equipment, and hazardous substances.

KU5. Knowledge of e-waste disposal methods and environmental safety practices.

Generic Skills (GS)

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

GS1. Ability to identify workplace hazards and take preventive actions.

GS2. Skill in following safe work practices and interpreting hazard signs.

GS3. Ability to use appropriate PPE based on work conditions.

GS4. Skill in handling tools, equipment, and hazardous materials safely.

GS5. Ability to dispose of electronic and hazardous waste responsibly.

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Deal with workplace hazards	**20**	**31**	**-**	**-**
PC1. identify job-site hazards and possible causes of accident in the workplace	2	3	-	-
PC2. perform work complying to organizational safe working practices and observing hazard signs displayed on containers, equipment and in various work areas such as inside buildings, in open areas and public spaces, etc.	3	4	-	-1
PC3. use appropriate personal protective equipment (PPE) for specific tasks and work conditions, contaminant (concentration w.r.t air) requirements and severity of hazard while conforming to the Indian/International standards	3	4	-	1
PC4. follow standard safety procedures while handling tool, equipment, hazardous substances and while working in hazardous environments	3	4	-	-
PC5. dispose electronic waste (such as toxins; metals such as lead, cadmium, barium; flame retardant plastics, welding slag etc.) as per industry approved techniques	2	4	-	-
PC6. avoid damage of components due to negligence in electrostatic discharge (ESD) procedures	2	3	-	-
PC7. locate general health and safety equipment in the workplace such as fire extinguishers; first aid equipment; safety instruments, clothing and installations (fire exits, exhaust fans)	2	3	-	-
PC8. maintain appropriate posture while handling heavy objects	1	3	-	-
PC9. apply good housekeeping practices at all times	2	3	-	-
Apply fire safety practices	**4**	**9**	**-**	**-**
PC10. take preventive measures to prevent fire hazards	2	3	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. • use appropriate fire extinguishers for different types of fires • Types of fires: Class A: e.g. ordinary solid combustibles, such as wood, paper, cloth, plastic, charcoal, etc.; Class B: flammable liquids and gases, such as gasoline, propane, diesel fuel, tar, cooking oil, and similar substances; Class C: e.g. electrical equipment such as appliances, wiring, breaker panels, etc. (These categories of fires become Class A, B, and D fires when the electrical equipment that initiated the fire is no l	1	3	-	-
PC12. exhibit rescue and first-aid techniques in case of fire or electrocution	1	3	-	-
Follow emergencies, rescue and first-aid procedures	**6**	**13**	**-**	**-**
PC13. administer appropriate first aid to victims in case of bleeding, burns, choking, electric shock, poisoning etc.	1	3	-	-
PC14. administer first aid to victims in case of a heart attack or cardiac arrest due to electric shock,	1	2	-	-
PC15. participate regularly in emergency procedures such as raising alarm, safe/efficient, evacuation, correct means of taking shelter and escaping, correct assembly point, roll call, correct return to work	2	4	-	-
PC16. use correct method to move injured people and others during an emergency	2	4	-	-
Effective waste management/recycling practices	**5**	**12**	**-**	**-**
PC17. identify recyclable and non-recyclable, and hazardous waste generated	1	3	-	-
PC18. segregate waste into different categories	1	2	-	-
PC19. ensure disposal of non-recyclable waste appropriately	1	2	-	-
PC20. deposit non-recyclable and reusable material at identified location	1	2	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC21. follow processes specified for disposal of hazardous wast	1	3	-	-
NOS Total	**35**	**65**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	ELE/N1007
NOS Name	Apply health and safety practices at the workplace..
Sector	Electronics
Sub-Sector	
Occupation	Generic - Health Safety
NSQF Level	3
Credits	1
Version	1.0
Last Reviewed Date	12/03/2026
Next Review Date	12/03/2029
NSQC Clearance Date	12/03/2026

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	12/03/2026
Next Review Date	12/03/2029
NSQC Clearance Date	12/03/2026

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

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

5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training centre based on this criterion.

6. To pass the Qualification Pack, every trainee should score a minimum of 70% of aggregate marks to successfully clear the assessment.

7. 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
ELE/N5908.Installation and troubleshoot of smart energy meter	40	60	-	-	100	25
ELE/N5909.Installation & troubleshoot of Smart Water Meter	40	60	-	-	100	25
ELE/N5910.Installation & troubleshoot of Smart Gas Meter	40	60	-	-	100	25
ELE/N1007.Apply health and safety practices at the workplace..	35	65	-	-	100	15
DGT/VSQ/N0101.Employability Skills (30 Hours)	20	30	-	-	50	10
Total	**175**	**275**	**-**	**-**	**450**	**100**

Acronyms

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

Glossary

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

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