

## Qualification Pack



# Capital Equipment - Instrumentation Technician

QP Code: CSC/Q0802

Version: 4.0

NSQF Level: 4

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## Qualification Pack

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## Qualification Pack

### CSC/Q0802: Capital Equipment - Instrumentation Technician

#### Brief Job Description

A Capital Equipment Instrumentation Technician is responsible for dismantling, repairing and replacing a range of instruments and faulty components in the instrumentation system. The individual is also responsible for setting up test equipment, troubleshooting components of instruments, calibrating them and also preparing service reports, documenting the repair and replacement of parts.

#### Personal Attributes

The individual must be physically fit to work for long durations with concentration. The person must have attention to detail, strong mathematical skills, and problem-solving skills with the ability to plan and perform own work independently. The individual must also be able to work in coordination with others to achieve the work objectives.

#### Applicable National Occupational Standards (NOS)

##### Compulsory NOS:

1. [CSC/N1335: Follow the health and safety practices at the work](#)
2. [CSC/N1336: Coordinate with co-workers to achieve work efficiency](#)
3. [CSC/N0801: Calibrate hydraulic, pneumatic and mechanical measuring and control equipment](#)
4. [CSC/N0803: Carry out maintenance activities on instrumentation and control equipment](#)
5. [DGT/VSQ/N0101: Employability Skills \(30 Hours\)](#)

#### Qualification Pack (QP) Parameters

Sector	Capital Goods
Sub-Sector	Machine Tools
Occupation	Calibration and Instrumentation
Country	India
NSQF Level	4
Credits	15

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<b>Aligned to NCO/ISCO/ISIC Code</b>	NCO-2015/7311.67
<b>Minimum Educational Qualification &amp; Experience</b>	12th Class (Pass) OR Completed 2nd year of the 3-year diploma after 10 (or equivalent) OR 10th grade pass with 1 year NTC plus NAC (or equivalent) OR 10th Class (Pass) with 3 Years of experience relevant OR 11th grade pass with 1.5 years of experience relevant OR Previous relevant Qualification of NSQF Level (3.5) with 1.5 years of experience relevant OR Previous relevant Qualification of NSQF Level (3) with 3 Years of experience relevant
<b>Minimum Level of Education for Training in School</b>	
<b>Pre-Requisite License or Training</b>	NA
<b>Minimum Job Entry Age</b>	18 Years
<b>Last Reviewed On</b>	NA
<b>Next Review Date</b>	30/04/2028
<b>NSQC Approval Date</b>	08/05/2025
<b>Version</b>	4.0
<b>Reference code on NQR</b>	QG-04-CG-03946-2025-V2-CGSSC
<b>NQR Version</b>	4.0

## Qualification Pack

### CSC/N1335: Follow the health and safety practices at the work

#### Description

This OS unit is about following the appropriate health and safety practices at work. It covers responsibilities towards self and others to ensure a safe work environment.

#### Scope

The scope covers the following :

- Maintain personal health and safety
- Assist in hazard management
- Check the first aid box, firefighting and safety equipment
- Assist in waste management
- Follow the fire safety guidelines
- Follow the emergency and first-aid procedures
- Carry out relevant documentation and review

#### Elements and Performance Criteria

##### *Maintain personal health and safety*

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

- PC1. follow the recommended practices to ensure protection from infections and transmission to others, such as the use of hand sanitiser and face mask
- PC2. check the work conditions, assess the potential health and safety risks, and take appropriate measures to mitigate them
- PC3. select and use the appropriate Personal Protective Equipment (PPE) relevant to the task and work conditions
- PC4. follow the recommended techniques while lifting and moving heavy objects to avoid injury
- PC5. follow the manufacturer's instructions and workplace safety guidelines while working on heavy machinery, tools and equipment

##### *Assist in hazard management*

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

- PC6. identify existing and potential hazards at work
- PC7. assess the potential risks and injuries associated with the identified hazards
- PC8. coordinate with the supervisor or other relevant personnel to prevent or minimise the identified hazards
- PC9. handle hazardous materials safely and store them in the designated storage

##### *Check the first aid box, firefighting and safety equipment*

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

- PC10. check the first aid box to ensure it is updated with the relevant first aid supplies
- PC11. check and test the firefighting and various safety equipment to ensure they are in usable condition

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PC12. coordinate with the supervisor for the repair and replacement of firefighting and safety equipment

### *Assist in waste management*

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

PC13. segregate waste into appropriate categories

PC14. recycle the recyclable waste appropriately

PC15. dispose of the non-recyclable waste in an environment-friendly manner, complying with the applicable regulations

### *Follow the fire safety guidelines*

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

PC16. use the appropriate type of fire extinguisher to extinguish different types of fires safely

PC17. follow the recommended practices for a safe rescue during a fire emergency

PC18. coordinate with the fire department to request assistance to extinguish a serious fire

### *Follow the emergency and first-aid procedures*

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

PC19. follow the organisational health and safety guidelines during workplace emergencies to ensure own and co-workers' safety

PC20. follow the recommended practices to minimise loss to organisational property during an emergency

PC21. follow the recommended procedure to free a person from electrocution

PC22. administer appropriate first aid to the injured personnel

PC23. perform Cardiopulmonary Resuscitation (CPR) on a potential victim of cardiac arrest

PC24. coordinate with the emergency services to request medical assistance for seriously injured/ ill personnel requiring professional medical attention or hospitalisation

### *Carry out relevant documentation and review*

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

PC25. carry out appropriate documentation following a health and safety incident at work, including all the required information

PC26. coordinate with the relevant personnel to review health and safety conditions at work regularly or following an incident

PC27. assist in implementing appropriate changes to improve the health and safety conditions at work

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. the recommended practices to be followed to ensure protection from infections and transmission to others, such as the use of hand sanitiser and face mask

KU2. the importance and process of checking the work conditions, assessing the potential health and safety risks, and take appropriate measures to mitigate them

KU3. the importance and process of selecting and using the appropriate PPE relevant to the task and work conditions

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- KU4. the recommended techniques to be followed while lifting and moving heavy objects to avoid injury
- KU5. the importance of following the manufacturer's instructions and workplace safety guidelines while working on heavy machinery, tools and equipment
- KU6. the importance and process of identifying existing and potential hazards at work
- KU7. the process of assessing the potential risks and injuries associated with the various hazards
- KU8. how to prevent or minimise different types of hazards
- KU9. how to handle and store hazardous materials safely
- KU10. the importance of ensuring the first aid box is updated with the relevant first aid supplies
- KU11. the process of checking and testing the firefighting and various safety equipment to ensure they are in a usable condition
- KU12. the criteria for segregating waste into appropriate categories
- KU13. the appropriate methods for recycling the recyclable waste
- KU14. the process of disposing of the non-recyclable waste safely and the applicable regulations
- KU15. Use of different types of fire extinguishers to extinguish different types of fires
- KU16. the recommended practices to be followed for a safe rescue during a fire emergency
- KU17. how to request assistance from the fire department to extinguish a serious fire
- KU18. the appropriate practices to be followed during workplace emergencies to ensure safety and minimise loss to organisational property
- KU19. common health and safety hazards present in a work environment, associated risks, and how to mitigate them
- KU20. safe working practices to be followed while working at various hazardous sites and using electrical equipment
- KU21. the importance of ensuring easy access to firefighting and safety equipment
- KU22. the appropriate preventative and remedial actions to be taken in the case of exposure to toxic materials, such as poisonous chemicals and gases
- KU23. various causes of fire in different work environments and the recommended precautions to be taken to prevent fire accidents
- KU24. different methods of extinguishing fire
- KU25. different materials used for extinguishing fire, such as sand, water, foam, CO<sub>2</sub>, dry powder, etc.
- KU26. the applicable rescue techniques to be followed during a fire emergency
- KU27. the importance of placing safety signs and instructions at strategic locations in a workplace and following them
- KU28. different types of first aid treatment to be provided for different types of injuries
- KU29. potential injuries associated with incorrect manual handling
- KU30. how to move an injured person safely
- KU31. various hazards associated with the use of various machinery, tools, implements, equipment and materials
- KU32. the importance of ensuring no obstruction and free access to fire exits
- KU33. how to free a person from electrocution safely
- KU34. how to administer appropriate first aid to an injured person

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- KU35. how to perform Cardiopulmonary Resuscitation (CPR)
- KU36. the importance of coordinating with the emergency services to request urgent medical assistance for persons requiring professional medical attention or hospitalisation
- KU37. the appropriate documentation to be carried out following a health and safety incident at work, and the relevant information to be included
- KU38. the importance and process of reviewing the health and safety conditions at work regularly or following an incident
- KU39. the importance and process of implementing appropriate changes to improve the health and safety conditions at work

## Generic Skills (GS)

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

- GS1. maintain work-related notes and records
- GS2. communicate clearly and politely with co-workers and clients
- GS3. read the relevant literature to get the latest updates about the field of work
- GS4. listen attentively to understand the information being shared
- GS5. plan and prioritise tasks to ensure timely completion
- GS6. take quick decisions to deal with workplace emergencies and accidents
- GS7. identify possible disruptions to work and take appropriate preventive measures
- GS8. coordinate with the co-workers to achieve the work objectives
- GS9. 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>Maintain personal health and safety</i>	7	12	-	-
PC1. follow the recommended practices to ensure protection from infections and transmission to others, such as the use of hand sanitiser and face mask	2	3	-	-
PC2. check the work conditions, assess the potential health and safety risks, and take appropriate measures to mitigate them	1	2	-	-
PC3. select and use the appropriate Personal Protective Equipment (PPE) relevant to the task and work conditions	1	2	-	-
PC4. follow the recommended techniques while lifting and moving heavy objects to avoid injury	1	3	-	-
PC5. follow the manufacturer's instructions and workplace safety guidelines while working on heavy machinery, tools and equipment	2	2	-	-
<i>Assist in hazard management</i>	4	10	-	-
PC6. identify existing and potential hazards at work	1	1	-	-
PC7. assess the potential risks and injuries associated with the identified hazards	1	3	-	-
PC8. coordinate with the supervisor or other relevant personnel to prevent or minimise the identified hazards	1	3	-	-
PC9. handle hazardous materials safely and store them in the designated storage	1	3	-	-
<i>Check the first aid box, firefighting and safety equipment</i>	3	7	-	-
PC10. check the first aid box to ensure it is updated with the relevant first aid supplies	1	2	-	-
PC11. check and test the firefighting and various safety equipment to ensure they are in usable condition	1	3	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. coordinate with the supervisor for the repair and replacement of firefighting and safety equipment	1	2	-	-
<i>Assist in waste management</i>	3	8	-	-
PC13. segregate waste into appropriate categories	1	3	-	-
PC14. recycle the recyclable waste appropriately	1	3	-	-
PC15. dispose of the non-recyclable waste in an environment-friendly manner, complying with the applicable regulations	1	2	-	-
<i>Follow the fire safety guidelines</i>	3	12	-	-
PC16. use the appropriate type of fire extinguisher to extinguish different types of fires safely	1	4	-	-
PC17. follow the recommended practices for a safe rescue during a fire emergency	1	4	-	-
PC18. coordinate with the fire department to request assistance to extinguish a serious fire	1	4	-	-
<i>Follow the emergency and first-aid procedures</i>	7	12	-	-
PC19. follow the organisational health and safety guidelines during workplace emergencies to ensure own and co-workers' safety	1	2	-	-
PC20. follow the recommended practices to minimise loss to organisational property during an emergency	1	3	-	-
PC21. follow the recommended procedure to free a person from electrocution	1	2	-	-
PC22. administer appropriate first aid to the injured personnel	1	2	-	-
PC23. perform Cardiopulmonary Resuscitation (CPR) on a potential victim of cardiac arrest	1	2	-	-
PC24. coordinate with the emergency services to request medical assistance for seriously injured/ ill personnel requiring professional medical attention or hospitalisation	2	1	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Carry out relevant documentation and review</i>	3	9	-	-
PC25. carry out appropriate documentation following a health and safety incident at work, including all the required information	1	3	-	-
PC26. coordinate with the relevant personnel to review health and safety conditions at work regularly or following an incident	1	3	-	-
PC27. assist in implementing appropriate changes to improve the health and safety conditions at work	1	3	-	-
<b>NOS Total</b>	<b>30</b>	<b>70</b>	-	-

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### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	CSC/N1335
<b>NOS Name</b>	Follow the health and safety practices at the work
<b>Sector</b>	Capital Goods
<b>Sub-Sector</b>	Machine Tools, Process Plant Machinery, Dies, Moulds and Press Tools, Electrical and Power Machinery, Plastics Manufacturing Machinery, Light Engineering Goods, Textile Manufacturing Machinery
<b>Occupation</b>	Machining
<b>NSQF Level</b>	3
<b>Credits</b>	TBD
<b>Version</b>	2.0
<b>Last Reviewed Date</b>	01/10/2025
<b>Next Review Date</b>	01/10/2028
<b>NSQC Clearance Date</b>	01/10/2025

## Qualification Pack

### CSC/N1336: Coordinate with co-workers to achieve work efficiency

#### Description

This OS unit is about working in coordination with co-workers to achieve the work objectives efficiently. It also covers practising inclusion at work.

#### Scope

The scope covers the following :

- Work effectively with co-workers
- Communicate effectively with co-workers
- Practice inclusion at work

#### Elements and Performance Criteria

##### *Work effectively with co-workers*

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

- PC1. plan daily tasks at work to ensure their timely completion and efficient use of time
- PC2. carry out work responsibilities adhering to the limits of authority
- PC3. follow the supervisor's instructions to ensure adherence to the applicable quality standards and timescales
- PC4. coordinate with the co-workers to achieve the work objectives efficiently
- PC5. prepare the relevant documents and reports as per the supervisor's instructions, providing appropriate information clearly and systematically
- PC6. coordinate with the supervisor or relevant personnel to deal with out of authority tasks and concerns
- PC7. mentor and assist subordinates in the execution of their work responsibilities
- PC8. identify possible disruptions to work through coordination with the relevant stakeholders and take appropriate preventive measures
- PC9. use various resources efficiently to ensure maximum utilisation and minimum wastage
- PC10. follow the recommended practices to avoid and resolve conflicts at work
- PC11. follow the relevant organisational policies to ensure disciplined behaviour with maximum productivity at work

##### *Communicate effectively with co-workers*

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

- PC12. follow the organisational policy for the efficient and timely dissemination of information to the authorised personnel
- PC13. communicate clearly and politely to ensure effective communication with co-workers
- PC14. follow the appropriate techniques for active listening during interactions

##### *Practice inclusion at work*

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

- PC15. empathise with Persons with Disabilities (PwD)

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PC16. adopt gender-neutral behaviour at work

### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1. the importance and process of effective communication in the workplace
- KU2. the barriers to effective communication and how to overcome them
- KU3. the importance of teamwork in an organisation's and individual's success
- KU4. the importance of active listening in the work environment
- KU5. the appropriate techniques to be followed for active listening
- KU6. importance of avoiding casual expletives and unpleasant terms while communicating professional circles
- KU7. the importance of maintaining discipline and ethical behaviour at work
- KU8. the common reasons for interpersonal conflict and how to resolve them
- KU9. the importance of developing effective work relationships for professional success
- KU10. how expressing and addressing grievances appropriately and effectively
- KU11. the importance and process of planning daily tasks to ensure their timely completion and efficient use of time
- KU12. the importance of adhering to the limits of authority at work
- KU13. the importance of following the applicable quality standards and timescales at work
- KU14. the importance of coordinating with the co-workers to achieve the work objectives efficiently
- KU15. the relevant documentation requirements
- KU16. the importance of providing appropriate information clearly and systematically in work documents
- KU17. the escalation matrix to be followed to deal with out of authority tasks and concerns
- KU18. the importance and process of mentoring and assisting subordinates in the execution of their work responsibilities
- KU19. how to identify possible disruptions to work prevent them
- KU20. how to use various resources efficiently to ensure maximum utilisation and minimum wastage
- KU21. the recommended practices to be followed at work to avoid and resolve conflicts at work
- KU22. the importance and process of efficient and timely dissemination of information to the authorised personnel
- KU23. how to communicate clearly and politely to ensure effective communication
- KU24. the importance of following the recommended practices to ensure an inclusive environment for PwD and all genders at work

### Generic Skills (GS)

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

- GS1. maintain work-related notes and records

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- GS2. read work-related and other relevant literature
- GS3. communicate politely and -professionally
- GS4. listen attentively to understand the information or instructions being shared
- GS5. plan and prioritise tasks to ensure timely completion
- GS6. take prompt decisions to deal with workplace emergencies and accidents
- GS7. 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>Work effectively with co-workers</i>	20	43	-	-
PC1. plan daily tasks at work to ensure their timely completion and efficient use of time	2	4	-	-
PC2. carry out work responsibilities adhering to the limits of authority	2	4	-	-
PC3. follow the supervisor's instructions to ensure adherence to the applicable quality standards and timescales	2	4	-	-
PC4. coordinate with the co-workers to achieve the work objectives efficiently	2	4	-	-
PC5. prepare the relevant documents and reports as per the supervisor's instructions, providing appropriate information clearly and systematically	2	4	-	-
PC6. coordinate with the supervisor or relevant personnel to deal with out of authority tasks and concerns	2	4	-	-
PC7. mentor and assist subordinates in the execution of their work responsibilities	2	4	-	-
PC8. identify possible disruptions to work through coordination with the relevant stakeholders and take appropriate preventive measures	2	4	-	-
PC9. use various resources efficiently to ensure maximum utilisation and minimum wastage	2	4	-	-
PC10. follow the recommended practices to avoid and resolve conflicts at work	1	4	-	-
PC11. follow the relevant organisational policies to ensure disciplined behaviour with maximum productivity at work	1	3	-	-
<i>Communicate effectively with co-workers</i>	6	15	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. follow the organisational policy for the efficient and timely dissemination of information to the authorised personnel	2	5	-	-
PC13. communicate clearly and politely to ensure effective communication with co-workers	2	5	-	-
PC14. follow the appropriate techniques for active listening during interactions	2	5	-	-
<i>Practice inclusion at work</i>	4	12	-	-
PC15. empathise with Persons with Disabilities (PwD)	2	6	-	-
PC16. adopt gender-neutral behaviour at work	2	6	-	-
<b>NOS Total</b>	<b>30</b>	<b>70</b>	-	-

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### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	CSC/N1336
<b>NOS Name</b>	Coordinate with co-workers to achieve work efficiency
<b>Sector</b>	Capital Goods
<b>Sub-Sector</b>	Machine Tools, Dies, Moulds and Press Tools, Plastics Manufacturing Machinery, Textile Manufacturing Machinery, Process Plant Machinery, Electrical and Power Machinery, Light Engineering Goods
<b>Occupation</b>	Machining
<b>NSQF Level</b>	3
<b>Credits</b>	TBD
<b>Version</b>	2.0
<b>Last Reviewed Date</b>	01/10/2025
<b>Next Review Date</b>	01/10/2028
<b>NSQC Clearance Date</b>	01/10/2025

## Qualification Pack

### CSC/N0801: Calibrate hydraulic, pneumatic and mechanical measuring and control equipment

#### Description

This OS unit is about the setting, adjusting and validating mechanical, pneumatic, hydraulic, electrical and electronic measuring and control instruments using the appropriate reference standards and following the approved standard procedures.

#### Scope

The scope covers the following :

- Prepare the testing equipment
- Test the measuring and control equipment
- Carry out fault management
- Calibrate the measuring and control equipment

#### Elements and Performance Criteria

##### *Prepare the testing equipment*

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

- PC1. check various components in the testing equipment for faults, wear and tear or damage
- PC2. repair or replace the faulty/ worn-out/ damaged components, as appropriate

##### *Test the measuring and control equipment*

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

- PC3. determine the test requirements, following the standard procedure
- PC4. plan the testing/calibration activities and prepare the appropriate schedules
- PC5. check the relevant equipment such as leads and fasteners for faults, wear and tear or damage
- PC6. repair or replace the equipment, as appropriate
- PC7. inspect the instruments to ensure they are free from damage and unwanted foreign objects
- PC8. carry out standard serviceability tests and calibration; special-to-type tests; operational/function checks, and gauge repeatability and reliability tests
- PC9. perform the operational/function checks
- PC10. conduct the gauge repeatability and reliability tests
- PC11. follow the relevant statistical process control methods during the calibration/ testing activities
- PC12. inspect and test the operation of instruments and systems using the relevant testing devices to diagnose faults
- PC13. select the appropriate test application method and testing equipment after the inspection of instrumentation systems and equipment/components
- PC14. determine the device isolation requirements and follow the appropriate device isolation methods

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- PC15. follow the appropriate test procedures and application principles to assess the operation of instrumentation systems and equipment/components
- PC16. identify the instances when testing/calibration activities cannot be completed or defects outside the planned schedule, and report it to the relevant personnel
- PC17. use the relevant Industry 4.0 manufacturing technologies to ensure interconnectivity, automation, machine learning, and real-time data collection and analysis
- PC18. carry out relevant documentation manually and/ or electronically with respect to the testing/calibration activities

### *Carry out fault management*

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

- PC19. analyse and verify the test results against the operational specifications to identify and localise faults
- PC20. identify the existing and potential faults following the applicable standard procedure, and report to the relevant personnel as per the SOP
- PC21. determine the faulty conditions and plan corrective action
- PC22. prepare and document an action plan as per the applicable procedures, including all the relevant information

### *Calibrate the measuring and control equipment*

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

- PC23. check the calibration of measuring and control equipment to ensure it is as per the manufacturers' specifications
- PC24. calibrate the measuring and control equipment as per the applicable physical standards using the appropriate calibration tools, equipment and techniques
- PC25. perform the zero span and range checks on indicators/controllers using the recommended configuration
- PC26. carry out appropriate adjustments to the operational specifications using the relevant calibration devices and procedures
- PC27. recommission the equipment according to the standard procedure
- PC28. coordinate with the relevant personnel to resolve any issues beyond own area of competence or experience
- PC29. monitor the problem and update the supervisor about the progress or any delays in resolving the problem
- PC30. carry out relevant documentation as per the organisational procedure

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1. the concepts and benefits of Industry 4.0 and Industrial Internet of Things (IIoT)
- KU2. the SOP for calibrating the measuring equipment and the relevant tools and equipment required for that
- KU3. the SOP for commissioning the measuring equipment
- KU4. the relevant calibration records to be maintained

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- KU5. the recommended specifications for measuring equipment and components for their optimum functioning
- KU6. the use of relevant tools and equipment for checking measuring equipment for faults
- KU7. the use of appropriate techniques to check the calibration of the measuring equipment for conformance to specifications
- KU8. the process of calibrating the measuring equipment according to the appropriate physical standard
- KU9. the process of recommissioning the measuring equipment
- KU10. the appropriate checks to be made on the measuring equipment and the use of relevant tools and equipment for the purpose
- KU11. how to resolve the common faults found in the measuring equipment
- KU12. the impact of faults on the performance/accuracy of the measuring equipment
- KU13. the hazards and controls relevant to calibrating the measuring equipment
- KU14. the functionality of the measuring equipment and the recommended tolerance levels for calibration
- KU15. the applicable instrumentation principles such as controlling density, level, flow, temperature, composition and arrangement of materials
- KU16. the principles of hydraulic and pneumatic flow
- KU17. the application principles for assessing the operation of instrumentation systems and equipment/components
- KU18. the procedure and use of relevant equipment for inspecting and testing instrumentation system
- KU19. the calibration procedures for instrumentation systems and equipment/ components
- KU20. the purpose and functions of instrumentation system
- KU21. the specifications of different types of instrumentation system and the acceptable deviations from specifications
- KU22. the procedure for repairing faulty instrumentation system
- KU23. the relevant techniques for dismantling, testing and reassembling an instrumentation system
- KU24. the correct operation of the instrumentation system and the procedure for isolating instrumentation systems
- KU25. different types of faults found in an instrumentation system and equipment components
- KU26. the process for checking and verifying the operational function of the instrumentation system and equipment
- KU27. the process of recording and completing service reports
- KU28. the operational specifications of the instrumentation system and equipment
- KU29. how to resolve variations between test results and operational specifications
- KU30. the causes of common faults found in the instrumentation system and equipment components
- KU31. the appropriate corrective action to be taken to rectify the causes of faults in the instrumentation systems and equipment
- KU32. the process of correcting faults in the instrumentation system and equipment components
- KU33. the importance and process of reporting the unresolved faults

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- KU34. the difference between real and potential faults
- KU35. the process for documenting test and calibration results
- KU36. the function and process of carrying out zero-and-span checks on instrumentation systems and equipment
- KU37. the relevant equipment required to carry out the calibration of instrumentation systems and equipment
- KU38. the instrumentation control equipment to be checked for weight, such as mechanical system, load cells/strain gauges, transducers, etc.
- KU39. the speed measurement and control equipment to be checked, such as mechanical governors, valves and valve mechanisms including control valves, valve actuators and positioners, etc.
- KU40. use of various and testing and calibration tools such as pressure gauge, standard test gauge, micrometre, jigs and fixtures, insulation testers, calibrated weights, Vernier calliper, deadweight tester, manometer, gyroscope, etc.
- KU41. the relevant documentation to be completed such as job card, progress report, incident report, calibration labels, test reports, nonconforming calibration reports, calibration certificates, etc.
- KU42. the relevant calibration records to be maintained
- KU43. the measuring equipment specifications, their use, connections and components

## Generic Skills (GS)

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

- GS1. maintain work-related notes and records
- GS2. read the relevant literature to get the latest updates about the field of work
- GS3. communicate politely and professionally
- GS4. listen attentively to understand the information being shared
- GS5. plan and schedule tasks for efficient time management
- GS6. identify possible disruptions to work and take appropriate preventive measures
- GS7. take quick decisions to deal with workplace emergencies/ accidents
- GS8. evaluate all possible solutions to a problem to select the best one

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare the testing equipment</i>	2	4	-	-
PC1. check various components in the testing equipment for faults, wear and tear or damage	1	2	-	-
PC2. repair or replace the faulty/ worn-out/ damaged components, as appropriate	1	2	-	-
<i>Test the measuring and control equipment</i>	16	48	-	-
PC3. determine the test requirements, following the standard procedure	1	3	-	-
PC4. plan the testing/calibration activities and prepare the appropriate schedules	1	3	-	-
PC5. check the relevant equipment such as leads and fasteners for faults, wear and tear or damage	1	3	-	-
PC6. repair or replace the equipment, as appropriate	1	3	-	-
PC7. inspect the instruments to ensure they are free from damage and unwanted foreign objects	1	3	-	-
PC8. carry out standard serviceability tests and calibration; special-to-type tests; operational/function checks, and gauge repeatability and reliability tests	1	3	-	-
PC9. perform the operational/function checks	1	3	-	-
PC10. conduct the gauge repeatability and reliability tests	1	3	-	-
PC11. follow the relevant statistical process control methods during the calibration/ testing activities	1	3	-	-
PC12. inspect and test the operation of instruments and systems using the relevant testing devices to diagnose faults	1	3	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. select the appropriate test application method and testing equipment after the inspection of instrumentation systems and equipment/components	1	3	-	-
PC14. determine the device isolation requirements and follow the appropriate device isolation methods	1	3	-	-
PC15. follow the appropriate test procedures and application principles to assess the operation of instrumentation systems and equipment/components	1	3	-	-
PC16. identify the instances when testing/calibration activities cannot be completed or defects outside the planned schedule, and report it to the relevant personnel	1	3	-	-
PC17. use the relevant Industry 4.0 manufacturing technologies to ensure interconnectivity, automation, machine learning, and real-time data collection and analysis	1	3	-	-
PC18. carry out relevant documentation manually and/ or electronically with respect to the testing/calibration activities	1	3	-	-
<i>Carry out fault management</i>	4	8	-	-
PC19. analyse and verify the test results against the operational specifications to identify and localise faults	1	2	-	-
PC20. identify the existing and potential faults following the applicable standard procedure, and report to the relevant personnel as per the SOP	1	2	-	-
PC21. determine the faulty conditions and plan corrective action	1	2	-	-
PC22. prepare and document an action plan as per the applicable procedures, including all the relevant information	1	2	-	-
<i>Calibrate the measuring and control equipment</i>	8	10	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC23. check the calibration of measuring and control equipment to ensure it is as per the manufacturers' specifications	1	1	-	-
PC24. calibrate the measuring and control equipment as per the applicable physical standards using the appropriate calibration tools, equipment and techniques	1	1	-	-
PC25. perform the zero span and range checks on indicators/controllers using the recommended configuration	1	1	-	-
PC26. carry out appropriate adjustments to the operational specifications using the relevant calibration devices and procedures	1	1	-	-
PC27. recommission the equipment according to the standard procedure	1	1	-	-
PC28. coordinate with the relevant personnel to resolve any issues beyond own area of competence or experience	1	1	-	-
PC29. monitor the problem and update the supervisor about the progress or any delays in resolving the problem	1	2	-	-
PC30. carry out relevant documentation as per the organisational procedure	1	2	-	-
<b>NOS Total</b>	<b>30</b>	<b>70</b>	-	-

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	CSC/N0801
<b>NOS Name</b>	Calibrate hydraulic, pneumatic and mechanical measuring and control equipment
<b>Sector</b>	Capital Goods
<b>Sub-Sector</b>	Machine Tools, Plastics Manufacturing Machinery, Textile Manufacturing Machinery, Process Plant Machinery, Electrical and Power Machinery, Light Engineering Goods
<b>Occupation</b>	Calibration and Instrumentation
<b>NSQF Level</b>	4
<b>Credits</b>	5
<b>Version</b>	2.0
<b>Last Reviewed Date</b>	08/05/2025
<b>Next Review Date</b>	08/05/2028
<b>NSQC Clearance Date</b>	08/05/2025

## Qualification Pack

### CSC/N0803: Carry out maintenance activities on instrumentation and control equipment

#### Description

This OS unit is about carrying out maintenance activities on instrumentation and control equipment according to the approved procedures. It also covers resource optimisation.

#### Scope

The scope covers the following :

- Prepare for the maintenance activities
- Carry out the maintenance activities
- Coordinate with the supervisor
- Use resource optimally

#### Elements and Performance Criteria

##### *Prepare for the maintenance activities*

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

- PC1. prepare and update the relevant maintenance schedules and plans
- PC2. perform appropriate risk assessments before testing and maintenance activities
- PC3. coordinate with the operations and production teams to ensure the availability of critical systems and spares parts

##### *Carry out the maintenance activities*

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

- PC4. use the correct and approved version of the company and/or manufacturer's drawings and maintenance documentation
- PC5. follow the instructions in manufacturers' manuals to perform test and maintenance activities
- PC6. follow the recommended maintenance schedules for critical systems, logging all repairs and inspections
- PC7. carry out the maintenance activities on a range of instrumentation and control equipment, following the appropriate techniques and procedures
- PC8. check the technical and mechanical systems to ensure their operation within the specified parameters
- PC9. conduct instrumentation evaluation for hydraulic, pneumatic, mechanical, electrical and electronic measuring and control equipment
- PC10. identify non-operational and malfunctioning systems in a timely manner to prevent any damage or loss
- PC11. conduct the appropriate tests related to the functional performance of instruments, as required
- PC12. test the instrumentation system operations to diagnose problems
- PC13. use the appropriate scientific and analytic computer software, calculators, electronic probes, voltage and current meters to diagnose faults in circuitry

## Qualification Pack

- PC14. coordinate with the relevant personnel to evaluate the functioning of routine and emergency instruments and equipment
- PC15. use the relevant testing devices to measure and control pressure, flow, temperature, level, motion, force, and chemical makeup
- PC16. adjust the system components and replace the defective parts, as required
- PC17. coordinate with engineers and process technicians to resolve the issues requiring their assistance
- PC18. recommission the instrumentation system appropriately, to return it to service following repair and replacement activities
- PC19. ensure compliance with the applicable policies, standards, and environmental and safety requirements while carrying out the required instrument maintenance or replacement activities
- PC20. follow the applicable organisational procedure for the resolution of defects outside the planned schedule
- PC21. carry out troubleshooting for test failures to determine root causes and develop processes to avoid repeat failure
- PC22. carry out appropriate documentation to record the relevant information regarding the maintenance activities
- PC23. follow the recommended practices to reduce the cost of repairing instruments and equipment while maintaining the quality of repairs

### *Coordinate with the supervisor*

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

- PC24. monitor the problem and update the superior about progress or any delays in resolving the problem
- PC25. coordinate with the supervisor or relevant expert to resolve any issues which are out of authority or area of competence
- PC26. identify appropriate improvements to the maintenance procedures and coordinate with the supervisor for their implementation

### *Use resources optimally*

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

- PC27. optimise the usage of electricity and other resources in various tasks and processes
- PC28. connect the electrical tools and equipment safely, and turn them off when not in use

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1. the appropriate documentation to be carried out, such as job card, work permit, risk assessment, sign-on/off, maintenance logs, etc.
- KU2. the applicable isolation and lock-off procedures or permit-to-work procedure that applies
- KU3. the relevant health and safety precautions to be taken during the maintenance process
- KU4. how to minimise risks from the hazards associated with carrying out mechanical maintenance activities, such as handling oils, greases, stored pressure/force, use of complex tools and equipment

## Qualification Pack

- KU5. the importance of using the relevant Personal Protective Equipment (PPE) clothing during the maintenance activities
- KU6. how to interpret drawings, specifications, manufacturers manuals and other documents needed during the maintenance process
- KU7. the functioning of different process plants and the appropriate measuring and control equipment
- KU8. the process to be adopted to establish the background of the fault
- KU9. how to evaluate various types of information available for fault diagnoses such as operator-provided information, equipment self-diagnosis, and testing instrument measurements
- KU10. use of various testing instruments such as multimeter, oscilloscope, logic probe, signal tracer, signal generator, etc.
- KU11. use of various aids for fault diagnosis such as logic diagrams: fault analysis charts, flow charts or algorithms, manufacturers' manuals, probability charts, computer-aided test equipment, electronic aids, etc.
- KU12. the application of various fault finding techniques such as half-split technique, input/output technique, injection and sampling, six-point technique, emergent sequence, unit substitution, function/performance testing: equipment self-diagnostics, etc.
- KU13. how to evaluate sensory conditions i.e. sight, sound, smell, touch
- KU14. how to analyse evidence and evaluate possible characteristics and causes of specific faults/problems
- KU15. how to relate to the previous reports/records of similar fault conditions
- KU16. how to evaluate the likely risk of running the equipment with the displayed fault, and the effects the fault could have on health and safety, and on the overall process or system
- KU17. the process of handling and maintaining instrumentation test instruments
- KU18. how to check that test instruments are within current calibration dates, and that they are free from damage and defects
- KU19. the relevant precautions to be taken to prevent Electrostatic Discharge (ESD) damage to electronic circuits and components
- KU20. basic principles of operation of the instrumentation and control equipment
- KU21. how the instrumentation system functions and its operating sequence
- KU22. the working purpose of individual units/components such as gauges and meters and how they interact
- KU23. the importance of ensuring the control systems are isolated or put into manual control, and appropriate trip locks, keys or program overrides are inserted before removing any sensors or instruments from the system
- KU24. the process of identifying and selecting instrument sensors, including how to identify their markings: calibration information: component values: operating parameters and working range
- KU25. the appropriate way of fitting instruments to avoid faulty readings caused by head correction, poor flow past sensor, blockages, incorrect wiring, poor insulation or incorrect materials
- KU26. the process of installing and connecting external wiring and components safely to avoid electronic interference or mechanical damage
- KU27. how to carry out visual checks of the instruments including checking for leaks, security of joints and physical damage

## Qualification Pack

- KU28. the relevant replacement parts, materials and other items required for the maintenance process
- KU29. the relevant techniques used to dismantle/assemble integrated equipment i.e. release of pressures/force, proof marking to aid reassembly, plugging exposed pipe/component openings, dealing with soldered joints, screwed, clamped and crimped connections
- KU30. the importance and process of attaching identification marks/labels to removed components or cables, to assist with reassembly
- KU31. the applicable methods for checking components are fit for purpose, and the need to replace electronic modules, sensors, transmitters, transducers, electronic boards and other failed items
- KU32. how to check that tools and equipment are free from damage or defects, are in a safe and usable condition, and are configured correctly for their intended purpose
- KU33. the equipment operating and control procedures to be applied during the maintenance activity
- KU34. how to resolve the common problems encountered during the maintenance of the instrumentation and control system
- KU35. how to adopt a systematic Plan-Do-Check-Act (PDCA) approach for solving problems and improving business
- KU36. the importance of making process improvements by engaging the relevant stakeholders
- KU37. how to create and update the SOPs, maintenance schedules and plans
- KU38. the techniques used to communicate information using visual control systems such as card systems, colour coding, floor footprints, graphs and charts, team boards, tool/equipment shadow boards, etc.
- KU39. the process of carrying out different types of maintenance such as preventive, corrective, predictive and reactive maintenance, and the activities these entail
- KU40. the benefits and methods of resource optimisation

## Generic Skills (GS)

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

- GS1. maintain work-related notes and records
- GS2. read the relevant literature to get the latest updates about the field of work
- GS3. listen attentively to understand the information/ instructions being shared
- GS4. communicate politely and professionally
- GS5. plan and prioritise tasks to ensure timely completion
- GS6. evaluate all possible solutions to a problem to select the best one
- GS7. coordinate with the co-workers to achieve the work objectives
- GS8. identify possible disruptions to work and take appropriate preventive measures
- GS9. take quick decisions to deal with workplace emergencies/ accidents

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare for the maintenance activities</i>	3	9	-	-
PC1. prepare and update the relevant maintenance schedules and plans	1	3	-	-
PC2. perform appropriate risk assessments before testing and maintenance activities	1	3	-	-
PC3. coordinate with the operations and production teams to ensure the availability of critical systems and spares parts	1	3	-	-
<i>Carry out the maintenance activities</i>	20	44	-	-
PC4. use the correct and approved version of the company and/or manufacturer's drawings and maintenance documentation	1	3	-	-
PC5. follow the instructions in manufacturers' manuals to perform test and maintenance activities	1	2	-	-
PC6. follow the recommended maintenance schedules for critical systems, logging all repairs and inspections	1	2	-	-
PC7. carry out the maintenance activities on a range of instrumentation and control equipment, following the appropriate techniques and procedures	1	2	-	-
PC8. check the technical and mechanical systems to ensure their operation within the specified parameters	1	3	-	-
PC9. conduct instrumentation evaluation for hydraulic, pneumatic, mechanical, electrical and electronic measuring and control equipment	1	2	-	-
PC10. identify non-operational and malfunctioning systems in a timely manner to prevent any damage or loss	1	2	-	-
PC11. conduct the appropriate tests related to the functional performance of instruments, as required	1	2	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. test the instrumentation system operations to diagnose problems	1	2	-	-
PC13. use the appropriate scientific and analytic computer software, calculators, electronic probes, voltage and current meters to diagnose faults in circuitry	1	2	-	-
PC14. coordinate with the relevant personnel to evaluate the functioning of routine and emergency instruments and equipment	1	2	-	-
PC15. use the relevant testing devices to measure and control pressure, flow, temperature, level, motion, force, and chemical makeup	1	2	-	-
PC16. adjust the system components and replace the defective parts, as required	1	2	-	-
PC17. coordinate with engineers and process technicians to resolve the issues requiring their assistance	1	2	-	-
PC18. recommission the instrumentation system appropriately, to return it to service following repair and replacement activities	1	2	-	-
PC19. ensure compliance with the applicable policies, standards, and environmental and safety requirements while carrying out the required instrument maintenance or replacement activities	1	2	-	-
PC20. follow the applicable organisational procedure for the resolution of defects outside the planned schedule	1	2	-	-
PC21. carry out troubleshooting for test failures to determine root causes and develop processes to avoid repeat failure	1	2	-	-
PC22. carry out appropriate documentation to record the relevant information regarding the maintenance activities	1	3	-	-
PC23. follow the recommended practices to reduce the cost of repairing instruments and equipment while maintaining the quality of repairs	1	3	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Coordinate with the supervisor</i>	3	9	-	-
PC24. monitor the problem and update the superior about progress or any delays in resolving the problem	1	3	-	-
PC25. coordinate with the supervisor or relevant expert to resolve any issues which are out of authority or area of competence	1	3	-	-
PC26. identify appropriate improvements to the maintenance procedures and coordinate with the supervisor for their implementation	1	3	-	-
<i>Use resources optimally</i>	4	8	-	-
PC27. optimise the usage of electricity and other resources in various tasks and processes	2	4	-	-
PC28. connect the electrical tools and equipment safely, and turn them off when not in use	2	4	-	-
<b>NOS Total</b>	<b>30</b>	<b>70</b>	-	-

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	CSC/N0803
<b>NOS Name</b>	Carry out maintenance activities on instrumentation and control equipment
<b>Sector</b>	Capital Goods
<b>Sub-Sector</b>	Machine Tools, Plastics Manufacturing Machinery, Textile Manufacturing Machinery, Process Plant Machinery, Electrical and Power Machinery, Light Engineering Goods
<b>Occupation</b>	Calibration and Instrumentation
<b>NSQF Level</b>	4
<b>Credits</b>	6
<b>Version</b>	2.0
<b>Last Reviewed Date</b>	08/05/2025
<b>Next Review Date</b>	08/05/2028
<b>NSQC Clearance Date</b>	08/05/2025

## Qualification Pack

### 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

## Qualification Pack

### *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

## Qualification Pack

- 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

## 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. understand the significance of employability skills in meeting the job requirements	-	-	-	-
<i>Constitutional values - Citizenship</i>	1	1	-	-
PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices	-	-	-	-
<i>Becoming a Professional in the 21st Century</i>	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.	-	-	-	-
<i>Basic English Skills</i>	2	3	-	-
PC4. speak with others using some basic English phrases or sentences	-	-	-	-
<i>Communication Skills</i>	1	1	-	-
PC5. follow good manners while communicating with others	-	-	-	-
PC6. work with others in a team	-	-	-	-
<i>Diversity &amp; Inclusion</i>	1	1	-	-
PC7. communicate and behave appropriately with all genders and PwD	-	-	-	-
PC8. report any issues related to sexual harassment	-	-	-	-
<i>Financial and Legal Literacy</i>	3	4	-	-
PC9. use various financial products and services safely and securely	-	-	-	-

### Qualification Pack

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	-	-	-	-
<i>Essential Digital Skills</i>	<b>4</b>	<b>6</b>	-	-
PC12. operate digital devices and use its features and applications securely and safely	-	-	-	-
PC13. use internet and social media platforms securely and safely	-	-	-	-
<i>Entrepreneurship</i>	<b>3</b>	<b>5</b>	-	-
PC14. identify and assess opportunities for potential business	-	-	-	-
PC15. identify sources for arranging money and associated financial and legal challenges	-	-	-	-
<i>Customer Service</i>	<b>2</b>	<b>2</b>	-	-
PC16. identify different types of customers	-	-	-	-
PC17. identify customer needs and address them appropriately	-	-	-	-
PC18. follow appropriate hygiene and grooming standards	-	-	-	-
<i>Getting ready for apprenticeship &amp; Jobs</i>	<b>1</b>	<b>3</b>	-	-
PC19. create a basic biodata	-	-	-	-
PC20. search for suitable jobs and apply	-	-	-	-
PC21. identify and register apprenticeship opportunities as per requirement	-	-	-	-
<b>NOS Total</b>	<b>20</b>	<b>30</b>	-	-

## Qualification Pack

### 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
Next Review Date	07/10/2028

## Assessment Guidelines and Assessment Weightage

### Assessment Guidelines

1. Criteria for assessment for the Qualification Pack will be created by CGSC.
2. Performance Criteria (PC) have been assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
3. The assessment for the theory part will/may be based on knowledge bank of questions approved CGSC.
4. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
5. Assessment Agencies will create Assessor Guides comprising of Theory and Practical Assessment Set and Guidelines for each examination/training centre (as per assessment criteria below). The same will be approved by CGSC for adequacy.
6. To successfully attain Certification on the Qualification Pack, the trainee must score a minimum of 70% in each Core NOS and minimum of 70% in all non-core NOS. In addition, a candidate needs to attain a minimum overall pass percentage of 70% for certification.
7. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

### Minimum Aggregate Passing % at QP Level : 70

(Please note: Every Trainee should score a minimum aggregate passing percentage as specified above, to

## Qualification Pack

successfully clear the Qualification Pack assessment.)

### Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
CSC/N1335.Follow the health and safety practices at the work	30	70	-	-	100	15
CSC/N1336.Coordinate with co-workers to achieve work efficiency	30	70	-	-	100	10
CSC/N0801.Calibrate hydraulic, pneumatic and mechanical measuring and control equipment	30	70	-	-	100	35
CSC/N0803.Carry out maintenance activities on instrumentation and control equipment	30	70	-	-	100	35
DGT/VSQ/N0101.Employability Skills (30 Hours)	20	30	-	-	50	5
<b>Total</b>	<b>140</b>	<b>310</b>	<b>-</b>	<b>-</b>	<b>450</b>	<b>100</b>

## Qualification Pack

### Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training
OEE	Overall Equipment Effectiveness
ESD	Electrostatic Discharge
PDCA	Plan Do Check Act
SOP	Standard Operating Procedure
ERP	Enterprise Resource Planning
AC/ DC	Alternating Current / Direct Current
RLC	Units Of Resistance, Inductance And Capacitance Respectively
CO2	Carbon Dioxide
CPR	Cardiac Pulmonary Resuscitation
PPE	Personal Protective Equipment

## Qualification Pack

### Glossary

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

## Qualification Pack

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