

Qualification Pack



Electro Discharge Machine (EDM) Operator

QP Code: CSC/Q0121

Version: 4.0

NSQF Level: 4

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Qualification Pack

Contents

| | |
|---|----|
| CSC/Q0121: Electro Discharge Machine (EDM) Operator | 3 |
| <i>Brief Job Description</i> | 3 |
| Applicable National Occupational Standards (NOS) | 3 |
| <i>Compulsory NOS</i> | 3 |
| <i>Qualification Pack (QP) Parameters</i> | 3 |
| CSC/N1335: Follow the health and safety practices at the work..... | 5 |
| CSC/N1336: Coordinate with co-workers to achieve work efficiency..... | 13 |
| CSC/N0121: Set up the CNC EDM for machining components..... | 19 |
| CSC/N0118: Operate the Digitally Enhanced CNC EDM to machine..... | 27 |
| DGT/VSQ/N0101: Employability Skills (30 Hours)..... | 33 |
| Assessment Guidelines and Weightage..... | 38 |
| <i>Assessment Guidelines</i> | 38 |
| <i>Assessment Weightage</i> | 39 |
| Acronyms..... | 40 |
| Glossary | 41 |

Qualification Pack

CSC/Q0121: Electro Discharge Machine (EDM) Operator

Brief Job Description

A CNC Setter and Operator - Electro Discharge Machine (Spark Erosion) is responsible for setting up the Computer Numerically Controlled (CNC) Electro Discharge Machine (EDM) for use and operating it as per the standard procedure to machine a variety of ferrous and non-ferrous metal components.

Personal Attributes

The individual must be physically fit to work for long durations. The person must have attention to detail and problem-solving skills along with numerical and computational abilities. The individual must be able to communicate well verbally and in writing.

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/N0121: Set up the CNC EDM for machining components](#)
4. [CSC/N0118: Operate the Digitally Enhanced CNC EDM to machine](#)
5. [DGT/VSQ/N0101: Employability Skills \(30 Hours\)](#)

Qualification Pack (QP) Parameters

| | |
|-------------------------------|--------------------|
| Sector | Capital Goods |
| Sub-Sector | Machine Tools |
| Occupation | Machining |
| Country | India |
| NSQF Level | 4 |
| Credits | 15 |
| Aligned to NCO/ISCO/ISIC Code | NCO-2015/7223.2800 |

Qualification Pack

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|---|---|
| Minimum Educational Qualification & Experience | Completed 2nd year of the 3-year diploma after 10 (Electrical / Mechanical) OR 10th Class (Pass) with 3 Years of experience relevant OR 11th Class (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 |
| Minimum Level of Education for Training in School | |
| Pre-Requisite License or Training | NA |
| Minimum Job Entry Age | 18 Years |
| Last Reviewed On | NA |
| Next Review Date | 30/04/2028 |
| NSQC Approval Date | 08/05/2025 |
| Version | 4.0 |
| Reference code on NQR | QG-04-CG-03941-2025-V2-CGSSC |
| NQR Version | 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

Qualification Pack

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

Qualification Pack

- 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, CO₂, 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

Qualification Pack

- 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

Qualification Pack

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 | - | - |

Qualification Pack

| 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 | - | - |

Qualification Pack

| 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 | - | - |
| NOS Total | 30 | 70 | - | - |

Qualification Pack

National Occupational Standards (NOS) Parameters

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

Qualification Pack

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

Qualification Pack

- 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

Qualification Pack

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 | - | - |

Qualification Pack

| 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 | - | - |
| NOS Total | 30 | 70 | - | - |

Qualification Pack

National Occupational Standards (NOS) Parameters

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

Qualification Pack

CSC/N0121: Set up the CNC EDM for machining components

Description

This OS unit is about setting up a CNC Electro-Discharge Machine (Spark Erosion) for machining a variety of ferrous and non-ferrous metal components to achieve the required specification

Scope

The scope covers the following :

- Prepare for setting up the CNC EDM
- Set up the CNC EDM for use

Elements and Performance Criteria

Prepare for setting up the CNC EDM

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

- PC1. determine the job specifications such as limits, tolerances, surface texture and finish requirements by referring to the valid and approved documents, such as job instruction sheet, component drawings, approved sketches/illustrations, etc.
- PC2. coordinate with the supervisor or other relevant personnel for the rectification of any incorrect and inconsistent information in the job specification documents
- PC3. check the availability of the required raw materials or components in the appropriate quality, quantity and type
- PC4. select the appropriate tools and equipment to be used for machining the components
- PC5. check the tools and equipment to ensure they are in working condition and carry out their regular repair and maintenance as per the manufacturer's instructions
- PC6. prepare the work area for setting up the CNC EDM, ensuring there are no hazards in the area
- PC7. use the relevant Personal Protective Equipment while setting up the CNC EDM, as required
- PC8. carry out routine cleaning of the CNC EDM
- PC9. check the position and alignment of the CNC EDM machine, and make appropriate adjustments as per the requirement
- PC10. use the appropriate measuring tools as per the job requirement, ensuring the tools are calibrated and approved for use
- PC11. check that the correct electrode is in place, and is in usable condition
- PC12. apply the recommended grade of grease on the relevant machine parts
- PC13. check the dielectric fluid, coolant and lubricant have the recommended levels, and replenish them, if required
- PC14. check the machine sub-systems to ensure they are working as expected
- PC15. prepare CNC Spark Erosion tooling for use

Set up the CNC EDM for use

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

- PC16. pre-set electrodes in tooling holders manually or by using setting jigs/fixtures, as appropriate

Qualification Pack

- PC17. position electrode holders in the correct position on the machine head or magazine
- PC18. check the electrode holders have the recommended tool number or technology setting with respect to the operating program
- PC19. program the relevant tooling data such as holder position and offsets in the operating program
- PC20. set the electrode datum point and save changes to the program
- PC21. mount and set the required work holding devices appropriately
- PC22. position and secure workpieces to machine table/ pneumatic or magnetic table using the appropriate accessories such as angle plate, v-block, clamp, chuck, etc.
- PC23. select, load and set the appropriate tool holding device appropriate to different types of electrodes, such as plain, profile, and hollow electrodes
- PC24. set the recommended machine tool operating parameters to achieve the required component specifications
- PC25. set up the machine with the appropriate specifications such as current density, spark frequency, linear feeds and speeds, dielectric flow rates, as per the requirement for machining various ferrous and non-ferrous metal components
- PC26. ensure to set up the CNC EDM to produce required features on the machined components such as angular, flat, square, parallel face; threads, concave, convex, internal and external profiles, etc.
- PC27. conduct trial runs and adjust machine parameters and positioning until the required accuracy parameters are achieved
- PC28. follow the manufacturer's instructions to resolve any issues encountered while setting up the CNC EDM, tooling, work holding devices and proving the program
- PC29. ensure there is no damage to the tool/fixture while performing the prove-out
- PC30. carry out appropriate documentation with respect to the setting up of CNC EDM, recording various machine parameters along with any issues encountered and steps taken to resolve them

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1. the relevant documentation requirements in the job
- KU2. applicable environmental regulations to be observed
- KU3. the terminology associated with CNC machining
- KU4. the relevant documentation to be referred to for determining the job specifications, such as job instruction sheet, planning and quality control documents, component drawing, approved sketches/illustrations, reference tables and charts, etc.
- KU5. the use of relevant PPE while carrying machining activities on a CNC EDM
- KU6. the importance of adhering to the applicable health and safety guidelines
- KU7. the importance of checking the machine guards are in place before operating the CNC EDM
- KU8. the process of checking the cutting tools and securing components on the CNC EDM without distortion

Qualification Pack

- KU9. the importance of leaving the work area and machine in a safe and appropriate condition on completion of the activities
- KU10. the imperial and metric systems of measurement
- KU11. use of the relevant measuring equipment such as micrometre, Vernier scale slip, bore/hole, thread, plug, radius/profile gauges Dial Test Indicator (DTI)
- KU12. how to read and interpret first and third angle component drawings
- KU13. how to extract information from engineering drawings or data and related specification
- KU14. the features and various parts of a CNC EDM machine, and the relevant accessories
- KU15. the importance of following the recommended machining sequences and procedures
- KU16. the importance of ensuring the suitability of workpieces/materials and consumables for the specified job and related procedures
- KU17. the importance and process of checking the tools and equipment to ensure they are in a safe and usable condition
- KU18. various work holding methods and devices used with a CNC EDM
- KU19. how to set up work holding devices and electrodes on CNC EDM
- KU20. the importance of ensuring the machine is isolated from the power supply before mounting electrodes and work holding devices
- KU21. the basic principles of operation of the various CNC EDM, and various operations that they can perform
- KU22. how to handle and store electrodes, electrode holders, verified tapes and programs safely
- KU23. the importance of setting the work holding device in relation to the machine datum and reference points
- KU24. various eroded features produced on a CNC EDM
- KU25. different types of electrodes such as plain, profile, and hollow electrodes
- KU26. the conditions determining the use of electrodes
- KU27. the process of selecting the correct grade and type of electrode for the materials and profile being machined
- KU28. the importance of checking the electrodes are in a good and serviceable condition
- KU29. use of various electrode tool holding devices
- KU30. the process of loading, securing and setting the electrodes appropriately in the electrode holder or feed mechanism
- KU31. use of tooling magazines or technology settings
- KU32. how to position and identify the tools in relation to the operating program
- KU33. how to place CNC EDM in the correct operating mode
- KU34. how to access the program edit facility to enter the tooling data
- KU35. how to conduct trial runs using single block run, dry run and feed/speed override controls
- KU36. appropriate check to be conducted before operating the machine in full program run mode
- KU37. how various types of materials affect the feeds and voltage to be used
- KU38. different types and applications of dielectric fluids concerning a range of different materials
- KU39. how to carry out regular repair and maintenance of a CNC EDM and rectify faults encountered during machining

Qualification Pack

KU40. how to resolve the common problems encountered while setting-up electrodes in cartridges/holders/feed mechanisms and with using work holding devices

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 or instructions being shared
- GS4. communicate politely and professionally
- GS5. perform work-related calculations
- GS6. coordinate with co-workers to achieve the work objectives
- GS7. plan and schedule tasks to ensure timely completion
- GS8. identify possible disruptions to work and take appropriate preventive measures
- GS9. take quick decisions to deal with workplace emergencies and accidents
- GS10. 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 for setting up the CNC EDM</i> | 17 | 36 | - | - |
| PC1. determine the job specifications such as limits, tolerances, surface texture and finish requirements by referring to the valid and approved documents, such as job instruction sheet, component drawings, approved sketches/illustrations, etc. | 1 | 4 | - | - |
| PC2. coordinate with the supervisor or other relevant personnel for the rectification of any incorrect and inconsistent information in the job specification documents | 1 | 4 | - | - |
| PC3. check the availability of the required raw materials or components in the appropriate quality, quantity and type | 1 | 4 | - | - |
| PC4. select the appropriate tools and equipment to be used for machining the components | 1 | 2 | - | - |
| PC5. check the tools and equipment to ensure they are in working condition and carry out their regular repair and maintenance as per the manufacturer's instructions | 1 | 2 | - | - |
| PC6. prepare the work area for setting up the CNC EDM, ensuring there are no hazards in the area | 1 | 2 | - | - |
| PC7. use the relevant Personal Protective Equipment while setting up the CNC EDM, as required | 1 | 2 | - | - |
| PC8. carry out routine cleaning of the CNC EDM | 1 | 2 | - | - |
| PC9. check the position and alignment of the CNC EDM machine, and make appropriate adjustments as per the requirement | 1 | 2 | - | - |
| PC10. use the appropriate measuring tools as per the job requirement, ensuring the tools are calibrated and approved for use | 1 | 2 | - | - |
| PC11. check that the correct electrode is in place, and is in usable condition | 1 | 2 | - | - |

Qualification Pack

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|--------------|-----------------|---------------|------------|
| PC12. apply the recommended grade of grease on the relevant machine parts | 1 | 2 | - | - |
| PC13. check the dielectric fluid, coolant and lubricant have the recommended levels, and replenish them, if required | 1 | 2 | - | - |
| PC14. check the machine sub-systems to ensure they are working as expected | 2 | 2 | - | - |
| PC15. prepare CNC Spark Erosion tooling for use | 2 | 2 | - | - |
| <i>Set up the CNC EDM for use</i> | 13 | 34 | - | - |
| PC16. pre-set electrodes in tooling holders manually or by using setting jigs/fixtures, as appropriate | 1 | 4 | - | - |
| PC17. position electrode holders in the correct position on the machine head or magazine | 1 | 4 | - | - |
| PC18. check the electrode holders have the recommended tool number or technology setting with respect to the operating program | 1 | 2 | - | - |
| PC19. program the relevant tooling data such as holder position and offsets in the operating program | 1 | 2 | - | - |
| PC20. set the electrode datum point and save changes to the program | 1 | 2 | - | - |
| PC21. mount and set the required work holding devices appropriately | 1 | 2 | - | - |
| PC22. position and secure workpieces to machine table/ pneumatic or magnetic table using the appropriate accessories such as angle plate, v-block, clamp, chuck, etc. | 1 | 2 | - | - |
| PC23. select, load and set the appropriate tool holding device appropriate to different types of electrodes, such as plain, profile, and hollow electrodes | 1 | 2 | - | - |
| PC24. set the recommended machine tool operating parameters to achieve the required component specifications | 1 | 2 | - | - |

Qualification Pack

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|--|--------------|-----------------|---------------|------------|
| PC25. set up the machine with the appropriate specifications such as current density, spark frequency, linear feeds and speeds, dielectric flow rates, as per the requirement for machining various ferrous and non-ferrous metal components | 1 | 2 | - | - |
| PC26. ensure to set up the CNC EDM to produce required features on the machined components such as angular, flat, square, parallel face; threads, concave, convex, internal and external profiles, etc. | 1 | 2 | - | - |
| PC27. conduct trial runs and adjust machine parameters and positioning until the required accuracy parameters are achieved | 1 | 2 | - | - |
| PC28. follow the manufacturer's instructions to resolve any issues encountered while setting up the CNC EDM, tooling, work holding devices and proving the program | 1 | 2 | - | - |
| PC29. ensure there is no damage to the tool/ fixture while performing the prove-out | - | 2 | - | - |
| PC30. carry out appropriate documentation with respect to the setting up of CNC EDM, recording various machine parameters along with any issues encountered and steps taken to resolve them | - | 2 | - | - |
| NOS Total | 30 | 70 | - | - |

Qualification Pack

National Occupational Standards (NOS) Parameters

| | |
|----------------------------|--|
| NOS Code | CSC/N0121 |
| NOS Name | Set up the CNC EDM for machining components |
| Sector | Capital Goods |
| Sub-Sector | Machine Tools, Dies, Moulds and Press Tools, Plastics Manufacturing Machinery, Textile Manufacturing Machinery |
| Occupation | Machining |
| NSQF Level | 4 |
| Credits | 5 |
| Version | 3.0 |
| Last Reviewed Date | 08/05/2025 |
| Next Review Date | 08/05/2028 |
| NSQC Clearance Date | 08/05/2025 |

Qualification Pack

CSC/N0118: Operate the Digitally Enhanced CNC EDM to machine

Description

This OS unit is about machining a variety of components using the Digitally Enhanced CNC EDM and achieving the given quality and accuracy standards as per the given specification. It also covers resource optimization.

Scope

The scope covers the following :

- Carry out machining using Digitally Enhanced CNC EDM
- Use resources optimally

Elements and Performance Criteria

Carry out machining using Digitally Enhanced CNC EDM

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

- PC1. check that the operating program is at the correct start point
- PC2. ensure that the workpiece is clear of tooling and secure to prevent distortion, before starting the machine
- PC3. follow the manufacturer's instructions for starting and running the operating system and CNC EDM
- PC4. carry out machining on the component as per the applicable organisational procedures to achieve the required specifications
- PC5. identify various mechanical faults, and error messages displayed on the CNC EDM and take appropriate action as per the manufacturer's instructions to deal with them promptly
- PC6. coordinate with the supervisor or the relevant expert to resolve any complex issues encountered with the Digitally Enhanced CNC EDM
- PC7. monitor the machining process and adjust the machine settings as per the requirement to maintain the required accuracy
- PC8. use the appropriate gauges and instruments for carrying out the necessary quality and accuracy checks during and after the machining process
- PC9. check the machined components to ensure they meet the applicable quality standards and have the required accuracy and specifications, such as flatness and squareness, surface texture, tolerance, dimensions, etc.
- PC10. segregate the components that don't meet the applicable quality and accuracy standards, and carry out further processing or dispose them as per the organisational policy
- PC11. ensure the daily production targets are met
- PC12. isolate the CNC EDM appropriately after closing the operating programs
- PC13. carry out regular maintenance of the Digitally Enhanced CNC EDM as per the manufacturer's instructions
- PC14. follow the recommended steps to deal with spilt cutting fluids

Qualification Pack

PC15. collect and dispose the industrial waste appropriately in compliance with the applicable regulations and organisational procedures

PC16. ensure adherence to the applicable national, international and organisational standards

Use resources optimally

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

PC17. optimise the usage of electricity and other resources in various tasks and processes

PC18. 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 importance of identifying relevant risks in the work area and dealing with them before operating the CNC EDM
- KU2. hazards associated with the use of a CNC EDM and how to minimise them, such as revolving/moving parts of machinery electrical components airborne hot metal particles sharp cutting tools burrs and sharp edges on the components use of power-operated chucks handling dielectrics fumes, etc.
- KU3. relevant safety precautions to be taken while operating a CNC EDM, such as the use of relevant PPE and ensuring the safety of co-workers
- KU4. how to use the various safety mechanisms available on CNC EDM, such as the emergency stop button/ brake
- KU5. how to interpret component drawings, eroding data, and component machining specification
- KU6. how to extract and use information from engineering drawings and related specification
- KU7. symbols and conventions appropriate to BS, ISO or BSEN, DIN standards
- KU8. various types of information found in component drawing, such as dimensioning and labelling information first and third angle orthographic projections isometric view reference points, etc.
- KU9. various errors and faults experienced with a CNC EDM and how to deal with them
- KU10. the importance of operating a CNC EDM according to the manufacturer's instructions
- KU11. how to find the correct restart point in the program when the machine has been stopped before completion of the program
- KU12. the workpiece reference points and system of tolerances
- KU13. the manual and automatic modes of machine control such as control buttons keyboard and touchpad
- KU14. how to operate the CNC EDM using single block run, full program run and feed/speed override controls
- KU15. the importance of accounting for electrode wear and how to make adjustments to the program operating parameters to take account of it
- KU16. the importance of maintaining spark gap during EDM machining process to prevent voltage surges from damaging equipment
- KU17. how to deal with sparking and arcing during EDM machining
- KU18. the importance of flushing during EDM machining
- KU19. the benefit of using dielectric fluid or EDM oil

Qualification Pack

- KU20. the importance of using the recommended polarity
- KU21. how to set and secure the workpiece to the machine table/work holding device correctly
- KU22. the effects of clamping the workpiece and how material removal can cause warping/distortion of the finished workpiece
- KU23. various types of materials used for electrodes, such as copper, tungsten copper, graphite, etc.
- KU24. use of various types of electrodes
- KU25. how electrodes are located and secured to the machine head, tool cartridge and tool magazine
- KU26. safe handling and storage of tooling, and dielectric and ionized fluids
- KU27. the importance of checking the condition of the electrode before using it
- KU28. the effects worn tooling has on the workpiece surface finish and tolerances
- KU29. the importance and process of dressing and reshaping electrodes, and the use of relevant equipment
- KU30. various problems encountered with electrical discharge activities and to overcome them
- KU31. the use of dielectric and ionized fluids with respect to the machining of various materials
- KU32. the relevant quality checks to be carried out after machining of 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 learn about the latest developments in the field of work
- GS3. listen attentively to understand the information or instructions being shared
- GS4. undertake work-related numerical computations
- GS5. use the appropriate units of measurement and measuring techniques
- GS6. communicate politely and professionally
- GS7. organise and analyse work-related information
- GS8. plan and prioritise tasks to ensure timely completion
- GS9. take prompt decisions to deal with workplace emergencies and accidents
- GS10. identify possible disruptions to work and take appropriate preventive measures
- GS11. evaluate all possible solutions to a problem to select the best one
- GS12. coordinate with co-workers to achieve the work objectives

Qualification Pack

Assessment Criteria

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|--|--------------|-----------------|---------------|------------|
| <i>Carry out machining using Digitally Enhanced CNC EDM</i> | 26 | 62 | - | - |
| PC1. check that the operating program is at the correct start point | 2 | 4 | - | - |
| PC2. ensure that the workpiece is clear of tooling and secure to prevent distortion, before starting the machine | 1 | 3 | - | - |
| PC3. follow the manufacturer's instructions for starting and running the operating system and CNC EDM | 1 | 3 | - | - |
| PC4. carry out machining on the component as per the applicable organisational procedures to achieve the required specifications | 2 | 4 | - | - |
| PC5. identify various mechanical faults, and error messages displayed on the CNC EDM and take appropriate action as per the manufacturer's instructions to deal with them promptly | 2 | 4 | - | - |
| PC6. coordinate with the supervisor or the relevant expert to resolve any complex issues encountered with the Digitally Enhanced CNC EDM | 2 | 4 | - | - |
| PC7. monitor the machining process and adjust the machine settings as per the requirement to maintain the required accuracy | 2 | 4 | - | - |
| PC8. use the appropriate gauges and instruments for carrying out the necessary quality and accuracy checks during and after the machining process | 1 | 4 | - | - |
| PC9. check the machined components to ensure they meet the applicable quality standards and have the required accuracy and specifications, such as flatness and squareness, surface texture, tolerance, dimensions, etc. | 2 | 4 | - | - |

Qualification Pack

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|--------------|-----------------|---------------|------------|
| PC10. segregate the components that don't meet the applicable quality and accuracy standards, and carry out further processing or dispose them as per the organisational policy | 1 | 4 | - | - |
| PC11. ensure the daily production targets are met | 1 | 4 | - | - |
| PC12. isolate the CNC EDM appropriately after closing the operating programs | 2 | 4 | - | - |
| PC13. carry out regular maintenance of the Digitally Enhanced CNC EDM as per the manufacturer's instructions | 1 | 4 | - | - |
| PC14. follow the recommended steps to deal with spilt cutting fluids | 2 | 4 | - | - |
| PC15. collect and dispose the industrial waste appropriately in compliance with the applicable regulations and organisational procedures | 2 | 4 | - | - |
| PC16. ensure adherence to the applicable national, international and organisational standards | 2 | 4 | - | - |
| <i>Use resources optimally</i> | 4 | 8 | - | - |
| PC17. optimise the usage of electricity and other resources in various tasks and processes | 2 | 4 | - | - |
| PC18. connect the electrical tools and equipment safely, and turn them off when not in use | 2 | 4 | - | - |
| NOS Total | 30 | 70 | - | - |

Qualification Pack

National Occupational Standards (NOS) Parameters

| | |
|----------------------------|--|
| NOS Code | CSC/N0118 |
| NOS Name | Operate the Digitally Enhanced CNC EDM to machine |
| Sector | Capital Goods |
| Sub-Sector | Machine Tools, Dies, Moulds and Press Tools, Plastics Manufacturing Machinery, Textile Manufacturing Machinery |
| Occupation | Machining |
| NSQF Level | 4 |
| Credits | 5 |
| Version | 4.0 |
| Last Reviewed Date | 08/05/2025 |
| Next Review Date | 08/05/2028 |
| NSQC Clearance Date | 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 & 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> | 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 | - | - | - | - |
| <i>Entrepreneurship</i> | 3 | 5 | - | - |
| PC14. identify and assess opportunities for potential business | - | - | - | - |
| PC15. identify sources for arranging money and associated financial and legal challenges | - | - | - | - |
| <i>Customer Service</i> | 2 | 2 | - | - |
| 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 & Jobs</i> | 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 | - | - |

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 | 15 |
| CSC/N0121.Set up the CNC EDM for machining components | 30 | 70 | - | - | 100 | 25 |
| CSC/N0118.Operate the Digitally Enhanced CNC EDM to machine | 30 | 70 | - | - | 100 | 25 |
| DGT/VSQ/N0101.Employability Skills (30 Hours) | 20 | 30 | - | - | 50 | 20 |
| Total | 140 | 310 | - | - | 450 | 100 |

Qualification Pack

Acronyms

| | |
|------------------|---|
| NOS | National Occupational Standard(s) |
| NSQF | National Skills Qualifications Framework |
| QP | Qualifications Pack |
| TVET | Technical and Vocational Education and Training |
| CNC | Computer Numerically Controlled |
| NC | Numerically Controlled |
| VMC | Vertical Machining Center |
| EDM | Electro Discharge Machine |
| CAD | Computer Aided Design |
| CO2 | Carbon Dioxide |
| CPR | Cardiac Pulmonary Resuscitation |
| PPE | Personal Protective Equipment |
| VDI | Verein Deutscher Ingenieure |
| TSGE | The Society Of German Engineers |
| H Limit | Hard Limit |
| DTI | Dial Test Indicators |
| BS/ISO/BS EN/DIN | Quality Management Standards |

Qualification Pack

Glossary

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

Qualification Pack

| | |
|---|--|
| 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. |