

## Qualification Pack



# Conventional Milling Operator

QP Code: CSC/Q0108

Version: 4.0

NSQF Level: 3

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## Qualification Pack

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## Qualification Pack

### CSC/Q0108: Conventional Milling Operator

#### Brief Job Description

A Conventional Milling Operator is responsible for milling a range of metal and non-metal components using a horizontal or vertical conventional milling machine. The individual is responsible for monitoring the machining operations and making appropriate adjustments to the milling machine to ensure the milled components conform to the given specifications.

#### Personal Attributes

The individual must be physically fit to work for long durations with concentration. The person must have basic numerical abilities along with basic oral and written communication skills. The individual must be able to work as per the given instructions and in coordination with others. The ability to identify and resolve problems quickly is another important requirement in the job role.

#### Applicable National Occupational Standards (NOS)

##### Compulsory NOS:

1. [CSC/N0108: Carry out milling operations using conventional milling machines](#)
2. [CSC/N1335: Follow the health and safety practices at the work](#)
3. [CSC/N1336: Coordinate with co-workers to achieve work efficiency](#)
4. [DGT/VSQ/N0101: Employability Skills \(30 Hours\)](#)

#### Qualification Pack (QP) Parameters

Sector	Capital Goods
Sub-Sector	Machine Tools
Occupation	Machining
Country	India
NSQF Level	3
Credits	12
Aligned to NCO/ISCO/ISIC Code	NCO-2015/7223.1201

### Qualification Pack

<b>Minimum Educational Qualification &amp; Experience</b>	10th Class (Pass) OR Grade 8 pass with 2 years of (NTC/ NAC) after 8th (or equivalent) OR 9th Class (Pass) with 1.5 years of experience relevant OR 8th Class pass with 3 Years of experience relevant OR Previous relevant Qualification of NSQF Level 2.5 with 1.5 years of experience relevant OR Previous relevant Qualification of NSQF Level 2 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>	01/10/2028
<b>NSQC Approval Date</b>	01/10/2025
<b>Version</b>	4.0
<b>Reference code on NQR</b>	QG-03-CG-00173-2023-V1.1-CGSC
<b>NQR Version</b>	4

## Qualification Pack

### CSC/N0108: Carry out milling operations using conventional milling machines

#### Description

This OS unit is about carrying out milling operations using conventional milling machines to produce a range of components as per the given specification.

#### Scope

The scope covers the following :

- Prepare for carrying out milling operations
- Carry out milling operations
- Follow safety guidelines
- Use resources optimally

#### Elements and Performance Criteria

##### *Prepare for carrying out milling operations*

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

- PC1. plan the daily activities to achieve the given production targets
- PC2. check the availability of the required tools and measuring instruments
- PC3. check the measuring instruments to ensure they are within the calibration date
- PC4. check the components before milling to ensure they are free from dirt, foreign objects and contamination
- PC5. check the post-machining sheet to determine if the component meets the applicable quality standards from the previous machining operations
- PC6. check the availability of relevant documents to determine the job specification, such as job card, engineering drawings, approved sketches/illustrations, etc.
- PC7. determine the job requirements through coordination with the supervisor and going through the relevant documents
- PC8. check the process sheet and match it with the received drawings and other specifications
- PC9. prepare the work area for operations, following the applicable organisational procedure and operations requirements
- PC10. coordinate with the machine setter to ensure the milling machine is ready for operations
- PC11. check the machine guards are installed appropriately, and adjust them, as required
- PC12. select the appropriate type of cutters according to the horizontal or vertical milling machine being used

##### *Carry out milling operations*

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

- PC13. clamp the workpiece securely and without distortion in a chuck/work holding device such as vice, V-block, clamp, angle plate, etc.
- PC14. check for safe resting of the component on the resting pads and clamping load of fixture

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- PC15. operate the machine controls in hand or power modes, as required
- PC16. adjust the machine settings as per the requirement to maintain the required accuracy and quality standards
- PC17. identify abnormal noises coming from the machine and component, and adjust the feed and Revolutions Per Minute (RPM), as required
- PC18. check the condition of the tools being used and repair them, as required
- PC19. check the components are free from false tool cuts, burrs and sharp edges
- PC20. follow the manufacturer's instructions to stop and restart the milling machine during emergencies
- PC21. carry out various milling operations to produce various features on metal and non-metal components
- PC22. follow the recommended practices to overcome the effects of backlash in machine slides and screws
- PC23. create roughing and finishing cuts to achieve the required surface finish and dimensional accuracy with minimum impact on tools
- PC24. use cutting fluids for lubrication, and reducing friction on a variety of materials
- PC25. use the relevant equipment such as tri-square, bevel protractor, Vernier calliper and micrometre to check critical parameters such as dimensions, squareness, hole size/fit, angles, flatness, surface finish, etc
- PC26. remove the components from the milling machine after performing the necessary quality checks or carry out further milling, as appropriate
- PC27. follow the manufacturer's instructions while operating various types of milling machines, such as horizontal and vertical milling machines
- PC28. ensure the milled components have the required dimensional tolerance, flatness and squareness; surface finish and angles
- PC29. follow the relevant quality control procedures while operating the milling machine and other relevant equipment
- PC30. use the relevant Industry 4.0 manufacturing technologies to ensure interconnectivity, automation, machine learning, and real-time data collection and analysis
- PC31. coordinate with the relevant personnel to resolve any issues experienced while carrying out milling
- PC32. record the measured values as per the organisational standards and complete the post-machining inspection sheet
- PC33. isolate the milling machine appropriately after use
- PC34. clean the milling machine and other relevant tools and equipment
- PC35. collect and dispose of the industrial waste appropriately following the applicable environmental regulations and organisational procedures

### *Follow safety guidelines*

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

- PC36. comply with the applicable health, safety, environmental and other relevant regulations
- PC37. select and use the appropriate Personal Protective Equipment (PPE) during machining operations
- PC38. follow the applicable Standard Operating Procedures (SOP) and instructions at work
- PC39. follow the organisational policy to deal with any hazards encountered during operations

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PC40. use the relevant power and manual tools, equipment, and accessories as per the manufacturer's instructions to avoid injury and achieve work efficiency

### *Use resources optimally*

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

PC41. optimise the usage of electricity and other resources in various tasks and processes

PC42. 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. applicable documentation requirements in the job role
- KU2. use of the relevant PPE
- KU3. applicable health, safety and environmental regulations and guidelines
- KU4. the concepts and benefits of Industry 4.0 and Industrial Internet of Things (IIoT)
- KU5. how to minimise various hazards associated with the milling operations
- KU6. the importance of keeping the work area clean and hazard-free
- KU7. how to read and interpret first and third angle component drawings
- KU8. how to extract information/ data and related specification from engineering drawings
- KU9. how to use imperial and metric systems of measurement
- KU10. use of different types of conventional milling machines such as horizontal, and vertical milling machine
- KU11. use of the relevant accessories such as saddle, compound slide, tailstock, profile attachment, fixed and live stays, etc.
- KU12. the purpose of milling metal and non-metal components
- KU13. use of different types of milling cutters
- KU14. various features produced on metal and non-metal components such as flat, square, parallel, angular face, steps/shoulders, enclosed and open-end tee slots recesses, drilled and bored holes concave, convex, gear forms, etc.
- KU15. different processes of milling such as up milling, down milling, face milling, end milling, gang and straddle milling milling of sunk and recessed surfaces side milling, angular milling, etc.
- KU16. the effects of backlash in machine slides and screws, and how to overcome it
- KU17. the importance of checking the process sheet and matching it with the received drawings and other material
- KU18. the importance and process of checking the quality of machined components according to the post-machining sheet to ensure conformance to the applicable quality standards
- KU19. how to run the part program in single block mode and the importance of checking the tool condition after each operation
- KU20. the importance of maintaining the recommended coolant levels and positioning the coolant nozzles appropriately
- KU21. the importance of checking the sequence of the program as per the process sheet
- KU22. the importance of checking for the presence of appropriate tools in the relevant pocket of Automatic Tool Changer (ATC)

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- KU23. how to identify abnormal noises coming from the machine and component
- KU24. how to adjust the feed and Revolutions Per Minute (RPM)
- KU25. the importance of checking the condition of tools being used in machining at appropriate intervals during the process
- KU26. how to identify inconsistencies in the dimensions due to tool wear and the process of correcting the offsets accordingly
- KU27. how to adjust the machine settings to maintain the desired accuracy
- KU28. the process of sharpening or replacing the worn-out/ damaged tools, using the necessary equipment
- KU29. the importance of modifying the tool offsets according to the new tools replacing them
- KU30. the relevant safety guidelines to be followed while sharpening/ replacing the worn-out/damaged tools
- KU31. the importance of clamping the workpiece in a chuck/work holding device appropriately
- KU32. the impact of improper clamping of a workpiece, such as the distortion of components
- KU33. different types of costs such as production cost, raw material cost, tool cost, coolant cost, cost of machine idling, part rejection cost overheads, etc.
- KU34. the impact of machine hour rate, cycle time and idle time on milling operations
- KU35. the process of selecting cutting tools, chip breaker geometry and cutting parameters
- KU36. the appropriate materials used for making a variety of tools
- KU37. the impact of tool nose radius, speed and feed rate on the milling operations
- KU38. how to identify various machining faults
- KU39. how to identify the sharpening needs of relevant tools and the process of sharpening them
- KU40. common problems encountered during milling and how to resolve them
- KU41. the relevant safe working practices and environmental regulations to be followed
- KU42. the importance of reporting problems promptly for their timely resolution
- KU43. 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 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 their 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



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GS12. coordinate with co-workers to achieve the work objectives

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### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare for carrying out milling operations</i>	9	21	-	-
PC1. plan the daily activities to achieve the given production targets	1	2	-	-
PC2. check the availability of the required tools and measuring instruments	-	1	-	-
PC3. check the measuring instruments to ensure they are within the calibration date	-	2	-	-
PC4. check the components before milling to ensure they are free from dirt, foreign objects and contamination	1	1	-	-
PC5. check the post-machining sheet to determine if the component meets the applicable quality standards from the previous machining operations	1	2	-	-
PC6. check the availability of relevant documents to determine the job specification, such as job card, engineering drawings, approved sketches/illustrations, etc.	1	2	-	-
PC7. determine the job requirements through coordination with the supervisor and going through the relevant documents	1	2	-	-
PC8. check the process sheet and match it with the received drawings and other specifications	1	2	-	-
PC9. prepare the work area for operations, following the applicable organisational procedure and operations requirements	1	2	-	-
PC10. coordinate with the machine setter to ensure the milling machine is ready for operations	1	2	-	-
PC11. check the machine guards are installed appropriately, and adjust them, as required	-	1	-	-
PC12. select the appropriate type of cutters according to the horizontal or vertical milling machine being used	1	2	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Carry out milling operations</i>	16	36	-	-
PC13. clamp the workpiece securely and without distortion in a chuck/work holding device such as vice, V-block, clamp, angle plate, etc.	1	2	-	-
PC14. check for safe resting of the component on the resting pads and clamping load of fixture	-	1	-	-
PC15. operate the machine controls in hand or power modes, as required	1	2	-	-
PC16. adjust the machine settings as per the requirement to maintain the required accuracy and quality standards	1	1	-	-
PC17. identify abnormal noises coming from the machine and component, and adjust the feed and Revolutions Per Minute (RPM), as required	1	2	-	-
PC18. check the condition of the tools being used and repair them, as required	-	1	-	-
PC19. check the components are free from false tool cuts, burrs and sharp edges	1	1	-	-
PC20. follow the manufacturer's instructions to stop and restart the milling machine during emergencies	1	1	-	-
PC21. carry out various milling operations to produce various features on metal and non-metal components	1	2	-	-
PC22. follow the recommended practices to overcome the effects of backlash in machine slides and screws	1	2	-	-
PC23. create roughing and finishing cuts to achieve the required surface finish and dimensional accuracy with minimum impact on tools	1	2	-	-
PC24. use cutting fluids for lubrication, and reducing friction on a variety of materials	-	1	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC25. use the relevant equipment such as tri-square, bevel protractor, Vernier calliper and micrometre to check critical parameters such as dimensions, squareness, hole size/fit, angles, flatness, surface finish, etc	1	2	-	-
PC26. remove the components from the milling machine after performing the necessary quality checks or carry out further milling, as appropriate	1	2	-	-
PC27. follow the manufacturer's instructions while operating various types of milling machines, such as horizontal and vertical milling machines	-	1	-	-
PC28. ensure the milled components have the required dimensional tolerance, flatness and squareness; surface finish and angles	-	1	-	-
PC29. follow the relevant quality control procedures while operating the milling machine and other relevant equipment	1	1	-	-
PC30. use the relevant Industry 4.0 manufacturing technologies to ensure interconnectivity, automation, machine learning, and real-time data collection and analysis	1	2	-	-
PC31. coordinate with the relevant personnel to resolve any issues experienced while carrying out milling	1	2	-	-
PC32. record the measured values as per the organisational standards and complete the post-machining inspection sheet	1	2	-	-
PC33. isolate the milling machine appropriately after use	-	2	-	-
PC34. clean the milling machine and other relevant tools and equipment	-	1	-	-
PC35. collect and dispose of the industrial waste appropriately following the applicable environmental regulations and organisational procedures	1	2	-	-
<i>Follow safety guidelines</i>	3	9	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC36. comply with the applicable health, safety, environmental and other relevant regulations	1	2	-	-
PC37. select and use the appropriate Personal Protective Equipment (PPE) during machining operations	-	1	-	-
PC38. follow the applicable Standard Operating Procedures (SOP) and instructions at work	1	2	-	-
PC39. follow the organisational policy to deal with any hazards encountered during operations	-	2	-	-
PC40. use the relevant power and manual tools, equipment, and accessories as per the manufacturer's instructions to avoid injury and achieve work efficiency	1	2	-	-
<i>Use resources optimally</i>	2	4	-	-
PC41. optimise the usage of electricity and other resources in various tasks and processes	1	2	-	-
PC42. connect the electrical tools and equipment safely, and turn them off when not in use	1	2	-	-
<b>NOS Total</b>	<b>30</b>	<b>70</b>	-	-

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### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	CSC/N0108
<b>NOS Name</b>	Carry out milling operations using conventional milling machines
<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>	7
<b>Version</b>	3.0
<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/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)

## 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	-	-
<b>NOS Total</b>	<b>30</b>	<b>70</b>	-	-

## Qualification Pack

### 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

### 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

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### *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/N0108. Carry out milling operations using conventional milling machines	30	70	0	0	100	60
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
DGT/VSQ/N0101. Employability Skills (30 Hours)	20	30	-	-	50	10
<b>Total</b>	<b>110</b>	<b>240</b>	<b>-</b>	<b>-</b>	<b>350</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
CO2	Carbon Dioxide
CPR	Cardiac Pulmonary Resuscitation
PPE	Personal Protective Equipment
ISO	International Organization For Standardization

## 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.

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<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.