









Polisher

Options: Polisher - Manual

QP Code: CSC/Q0113

Version: 3.0

NSQF Level: 2

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CSC/Q0113: Polisher

Brief Job Description

A Polisher is responsible for carrying out mechanical polishing on a variety of surfaces, removing contamination and defects such as scratches and abrasions. The individual uses relevant machinery and abrasive tools, such as wheels, hot blackeners, vibratory finishers, and dryers while performing relevant activities such as fluidized bed polishing, vapour blasting, rotary polishing, shot blasting, etc.

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 the ability to work in coordination with others. The individual must have basic verbal and written communication skills.

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/N0113: Carry out polishing using the relevant machinery, tools and equipment
- 4. DGT/VSQ/N0101: Employability Skills (30 Hours)

Options(*Not mandatory*):

Option: Polisher - Manual

A Polisher - Manual is responsible for polishing a variety of metal and metal alloy components manually, using the relevant tools, equipment and abrasive media to remove surface imperfections and achieve the required finish. The individual is also responsible for carrying out minor repair and maintenance of the relevant tools and equipment.

1. CSC/N0703: Carry out manual polishing on various metals and metal alloy components

Qualification Pack (QP) Parameters

Sector Capital Goods	
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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	Coating and Painting
Country	India
NSQF Level	2
Credits	9
Aligned to NCO/ISCO/ISIC Code	NCO-2015/7224.0801
Minimum Educational Qualification & Experience	Ability to read and write
Minimum Level of Education for Training in School	Not Applicable
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	NA
Next Review Date	31/03/2024
NSQC Approval Date	31/03/2021
Version	3.0
Reference code on NQR	QG-02-CG-00180-2023-V1.1-CGSC
NQR Version	1









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









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









- **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









- **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









Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Maintain personal health and safety	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	-	-
Assist in hazard management	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	-	-
Check the first aid box, firefighting and safety equipment	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	-	-









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	-	-
Assist in waste management	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	-	-
Follow the fire safety guidelines	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	-	-
Follow the emergency and first-aid procedures	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	-	-









Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Carry out relevant documentation and review	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	-	-









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	26/05/2022
Next Review Date	31/03/2024
NSQC Clearance Date	31/03/2021









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)









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









- 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









Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Work effectively with co-workers	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	-	-
Communicate effectively with co-workers	6	15	-	-









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	-	-
Practice inclusion at work	4	12	-	-
PC15. empathise with Persons with Disabilities (PwD)	2	6	-	-
PC16. adopt gender-neutral behaviour at work	2	6	-	-
NOS Total	30	70	-	-









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	26/05/2022
Next Review Date	31/03/2024
NSQC Clearance Date	31/03/2021









CSC/N0113: Carry out polishing using the relevant machinery, tools and equipment

Description

This OS unit is about carrying out mechanical polishing on a wide range of metal and metal alloy surfaces using the appropriate polishing machinery, tools and equipment.

Scope

The scope covers the following:

- Prepare for polishing operations
- Carry out polishing operation
- Use resources optimally

Elements and Performance Criteria

Prepare for polishing operations

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

- **PC1.** determine the surface texture and finishing requirements by referring to the job instruction sheet and quality control documents
- **PC2.** coordinate with the supervisor for the rectification of incorrect and inconsistent information in the job specification documents
- **PC3.** select the appropriate polishing method, tools and equipment according to the polishing requirements
- **PC4.** check the availability of required workpieces/raw materials and consumables as per the job requirements
- **PC5.** prepare the work area for the polishing operations, ensuring no hazards in the area
- **PC6.** set up the relevant machinery appropriately for carrying out polishing
- **PC7.** set the workpiece using the appropriate positioning or holding devices as per job requirement

Carry out polishing operations

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

- **PC8.** carry out polishing as per the standard procedure
- **PC9.** carry out the appropriate mechanical polishing processes such as vibro finishing, barrelling, fluidized bed polishing, vapour blasting, rotary polishing and shot blasting as per the requirement
- **PC10.** check the surface finish, texture and other relevant parameters of the polished surfaces to ensure completeness of work and conformance to the applicable quality parameters
- **PC11.** identify common surface imperfections and carry out further polishing to remove them
- **PC12.** follow the organisational policy while handling the raw material and finished components, taking the necessary precautions
- **PC13.** carry out polishing of components as per the given production targets









- **PC14.** coordinate with the supervisor or other relevant personnel to resolve complex and out of authority issues
- **PC15.** carry out minor repair and maintenance of the polishing tools and equipment and store them safely in the designated storage area
- **PC16.** isolate the relevant machinery appropriately after use
- **PC17.** use the relevant Industry 4.0 manufacturing technologies to ensure interconnectivity, automation, machine learning, and real-time data collection and analysis
- **PC18.** collect and dispose of the industrial waste appropriately in compliance with the relevant environmental regulations and organisational policies
- **PC19.** carry out the necessary documentation such as job card, progress and incident reports, as per the organisational procedure

Use resources optimally

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

- **PC20.** optimise the usage of electricity and other resources in various tasks and processes
- PC21. 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.** the concepts and benefits of Industry 4.0 and Industrial Internet of Things (IIoT)
- **KU3.** different types of metals, metal alloys and non-metals
- **KU4.** the terminology used in polishing procedures
- **KU5.** the hazards associated with carrying out the mechanical finishing/polishing process and how to deal with them effectively
- **KU6.** use of the relevant PPE for carrying out mechanical polishing activities
- **KU7.** how to identify various mechanical polishing process faults such as pitting, erosion of substrate, inconsistent polishing, perforation and incorrect colour
- **KU8.** use of different types of polishing machinery
- **KU9.** the process of polishing different types of materials such as cast iron, zinc/zinc alloys, bronze, low-carbon, low alloy, high yield, stainless steels, clad and coated materials, aluminium/aluminium alloys, copper/copper alloys, etc.
- **KU10.** different types of tools and equipment required for adjusting the settings on polishing machines to achieve the required surface finish
- **KU11.** the process of setting operational performance parameters such as speed, smoothness, time on the polishing machine on polishing machines
- **KU12.** the importance and process of monitoring the equipment settings and functioning during the mechanical polishing process
- **KU13.** different types of finishing and polishing methods and techniques
- **KU14.** the criteria for selecting different types of machinery, methods and techniques for finishing and polishing different types of surfaces
- **KU15.** the importance of using the polishing machinery, tools and equipment according to the manufacturers instructions









- **KU16.** the effect of using different types and grades of abrasive media on surface finish
- **KU17.** the importance of following specified polishing sequence and procedures
- **KU18.** the importance of determining the surface finish requirements before starting the polishing operations
- **KU19.** the importance of determining the suitability of abrasive media with the workpiece before starting the polishing operations
- **KU20.** the importance and process of securing the workpiece/raw material using the appropriate work holding devices and mechanisms
- **KU21.** how to check the common surface imperfections/defects and non-conformance to specifications
- **KU22.** common problems encountered during the polishing process and how to resolve them
- **KU23.** different types of surface imperfections/defects that can be removed/repaired by mechanical finishing/polishing processes
- **KU24.** the process of handling components with surface imperfections/defects that cannot be removed/repaired
- **KU25.** the importance of removing all the polished components from the equipment before polishing the next batch
- **KU26.** the relevant mechanical polishing processes, such as vibro finishing, barreling, fluidized bed polishing, vapour blasting, rotary polishing, shot blasting, grid blasting, etc.
- **KU27.** the importance of storing the machinery, tools and equipment safely at the designated storage after use
- **KU28.** how to carry out minor repair and maintenance of the polishing tools and equipment
- **KU29.** 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.** undertake work-related numerical computations
- **GS3.** use the appropriate units of measurement and measuring techniques
- **GS4.** read the relevant literature to learn about the latest developments in the field of work
- **GS5.** listen attentively to understand the information or instructions being shared
- **GS6.** communicate politely and professionally
- **GS7.** plan and prioritise tasks to ensure timely completion
- **GS8.** coordinate with co-workers to achieve the work objectives
- **GS9.** evaluate all possible solutions to a problem to select the best one
- **GS10.** take prompt decisions to deal with workplace emergencies and accidents









Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Prepare for polishing operations	13	18	-	-
PC1. determine the surface texture and finishing requirements by referring to the job instruction sheet and quality control documents	2	3	-	-
PC2. coordinate with the supervisor for the rectification of incorrect and inconsistent information in the job specification documents	2	3	-	-
PC3. select the appropriate polishing method, tools and equipment according to the polishing requirements	2	3	-	-
PC4. check the availability of required workpieces/raw materials and consumables as per the job requirements	2	3	-	-
PC5. prepare the work area for the polishing operations, ensuring no hazards in the area	2	3	-	-
PC6. set up the relevant machinery appropriately for carrying out polishing	2	2	-	-
PC7. set the workpiece using the appropriate positioning or holding devices as per job requirement	1	1	-	-
Carry out polishing operations	16	48	-	-
PC8. carry out polishing as per the standard procedure	2	5	-	-
PC9. carry out the appropriate mechanical polishing processes such as vibro finishing, barrelling, fluidized bed polishing, vapour blasting, rotary polishing and shot blasting as per the requirement	2	4	-	-
PC10. check the surface finish, texture and other relevant parameters of the polished surfaces to ensure completeness of work and conformance to the applicable quality parameters	2	3	-	-









Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. identify common surface imperfections and carry out further polishing to remove them	1	4	-	-
PC12. follow the organisational policy while handling the raw material and finished components, taking the necessary precautions	2	4	-	-
PC13. carry out polishing of components as per the given production targets	1	4	-	-
PC14. coordinate with the supervisor or other relevant personnel to resolve complex and out of authority issues	1	4	-	-
PC15. carry out minor repair and maintenance of the polishing tools and equipment and store them safely in the designated storage area	1	4	-	-
PC16. isolate the relevant machinery appropriately after use	1	4	-	-
PC17. use the relevant Industry 4.0 manufacturing technologies to ensure interconnectivity, automation, machine learning, and real-time data collection and analysis	1	4	-	-
PC18. collect and dispose of the industrial waste appropriately in compliance with the relevant environmental regulations and organisational policies	1	4	-	-
PC19. carry out the necessary documentation such as job card, progress and incident reports, as per the organisational procedure	1	4	-	-
Use resources optimally	2	3	-	-
PC20. optimise the usage of electricity and other resources in various tasks and processes	1	2	-	-
PC21. connect the electrical tools and equipment safely, and turn them off when not in use	1	1	-	-
NOS Total	31	69	-	-









National Occupational Standards (NOS) Parameters

NOS Code	CSC/N0113
NOS Name	Carry out polishing using the relevant machinery, tools and equipment
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	Coating and Painting
NSQF Level	2
Credits	2
Version	3.0
Last Reviewed Date	NA
Next Review Date	31/03/2024
NSQC Clearance Date	31/03/2021









DGT/VSQ/N0101: Employability Skills (30 Hours)

Description

This unit is about employability skills, Constitutional values, becoming a professional in the 21st Century, digital, financial, and legal literacy, diversity and Inclusion, English and communication skills, customer service, entrepreneurship, and apprenticeship, getting ready for jobs and career development.

Scope

The scope covers the following:

- Introduction to Employability Skills
- Constitutional values Citizenship
- Becoming a Professional in the 21st Century
- Basic English Skills
- Communication Skills
- Diversity & Inclusion
- Financial and Legal Literacy
- Essential Digital Skills
- Entrepreneurship
- Customer Service
- Getting ready for Apprenticeship & Jobs

Elements and Performance Criteria

Introduction to Employability Skills

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

PC1. understand the significance of employability skills in meeting the job requirements

Constitutional values - Citizenship

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

PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices

Becoming a Professional in the 21st Century

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

PC3. explain 21st Century Skills such as Self-Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc.

Basic English Skills

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

PC4. speak with others using some basic English phrases or sentences

Communication Skills

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

PC5. follow good manners while communicating with others

PC6. work with others in a team









Diversity & Inclusion

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

PC7. communicate and behave appropriately with all genders and PwD

PC8. report any issues related to sexual harassment

Financial and Legal Literacy

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

PC9. use various financial products and services safely and securely

PC10. calculate income, expenses, savings etc.

PC11. approach the concerned authorities for any exploitation as per legal rights and laws

Essential Digital Skills

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

PC12. operate digital devices and use its features and applications securely and safely

PC13. use internet and social media platforms securely and safely

Entrepreneurship

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

PC14. identify and assess opportunities for potential business

PC15. identify sources for arranging money and associated financial and legal challenges

Customer Service

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

PC16. identify different types of customers

PC17. identify customer needs and address them appropriately

PC18. follow appropriate hygiene and grooming standards

Getting ready for apprenticeship & Jobs

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

PC19. create a basic biodata

PC20. search for suitable jobs and apply

PC21. identify and register apprenticeship opportunities as per requirement

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. need for employability skills

KU2. various constitutional and personal values

KU3. different environmentally sustainable practices and their importance

KU4. Twenty first (21st) century skills and their importance

KU5. how to use basic spoken English language

KU6. Do and dont of effective communication

KU7. inclusivity and its importance

KU8. different types of disabilities and appropriate communication and behaviour towards PwD

KU9. different types of financial products and services









- **KU10.** how to compute income and expenses
- **KU11.** importance of maintaining safety and security in financial transactions
- **KU12.** different legal rights and laws
- **KU13.** how to operate digital devices and applications safely and securely
- KU14. ways to identify business opportunities
- KU15. types of customers and their needs
- **KU16.** how to apply for a job and prepare for an interview
- **KU17.** apprenticeship scheme and the process of registering on apprenticeship portal

Generic Skills (GS)

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

- **GS1.** communicate effectively using appropriate language
- GS2. behave politely and appropriately with all
- **GS3.** perform basic calculations
- **GS4.** solve problems effectively
- **GS5.** be careful and attentive at work
- **GS6.** use time effectively
- **GS7.** maintain hygiene and sanitisation to avoid infection









Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Introduction to Employability Skills	1	1	-	-
PC1. understand the significance of employability skills in meeting the job requirements	-	-	-	-
Constitutional values – Citizenship	1	1	-	-
PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices	-	-	-	-
Becoming a Professional in the 21st Century	1	3	-	-
PC3. explain 21st Century Skills such as Self-Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc.	-	-	-	-
Basic English Skills	2	3	-	-
PC4. speak with others using some basic English phrases or sentences	-	-	-	-
Communication Skills	1	1	-	-
PC5. follow good manners while communicating with others	-	-	-	-
PC6. work with others in a team	-	-	-	-
Diversity & Inclusion	1	1	-	-
PC7. communicate and behave appropriately with all genders and PwD	-	-	-	-
PC8. report any issues related to sexual harassment	-	-	-	-
Financial and Legal Literacy	3	4	-	-
PC9. use various financial products and services safely and securely	-	-	-	-









Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. calculate income, expenses, savings etc.	-	-	-	-
PC11. approach the concerned authorities for any exploitation as per legal rights and laws	-	-	-	-
Essential Digital Skills	4	6	-	-
PC12. operate digital devices and use its features and applications securely and safely	-	-	-	-
PC13. use internet and social media platforms securely and safely	-	-	-	-
Entrepreneurship	3	5	-	-
PC14. identify and assess opportunities for potential business	-	-	-	-
PC15. identify sources for arranging money and associated financial and legal challenges	-	-	-	-
Customer Service	2	2	-	-
PC16. identify different types of customers	-	-	-	-
PC17. identify customer needs and address them appropriately	-	-	-	-
PC18. follow appropriate hygiene and grooming standards	-	-	-	-
Getting ready for apprenticeship & Jobs	1	3	-	-
PC19. create a basic biodata	-	-	-	-
PC20. search for suitable jobs and apply	-	-	-	-
PC21. identify and register apprenticeship opportunities as per requirement	-	-	-	-
NOS Total	20	30	-	-









National Occupational Standards (NOS) Parameters

NOS Code	DGT/VSQ/N0101
NOS Name	Employability Skills (30 Hours)
Sector	Cross Sectoral
Sub-Sector	Professional Skills
Occupation	Employability
NSQF Level	2
Credits	1
Version	1.0
Last Reviewed Date	29/09/2023
Next Review Date	29/09/2028
NSQC Clearance Date	29/09/2023









CSC/N0703: Carry out manual polishing on various metals and metal alloy components

Description

This OS unit is about polishing a wide range of metal and metal alloy components manually. It also covers resource optimisation.

Scope

The scope covers the following:

- Prepare for manual polishing
- Carry out manual polishing
- Use resources optimally

Elements and Performance Criteria

Prepare for manual polishing

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

- **PC1.** determine the polishing requirements and specifications, such as surface texture, finish and tolerance requirements, by referring to the job instructions sheet
- **PC2.** coordinate with the supervisor to seek clarification regarding the work to be completed, if required
- **PC3.** check the availability of the components/ workpieces to be polished along with the required tools, equipment, and consumables as per the job requirements
- **PC4.** prepare the work area for the polishing operations as per organisational procedure, ensuring there are no hazards in the work area
- **PC5.** select the appropriate polishing method as per the work requirements

Carry out manual polishing

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

- **PC6.** set up abrasive belts, grinding wheels and mops according to the requirement
- **PC7.** install polishing mops and buffs following the standard procedure
- **PC8.** set the component/ workpiece using the appropriate positioning and work holding device
- **PC9.** carry out manual polishing as per the required specifications
- **PC10.** check the polished workpieces to ensure conformance to the applicable quality standards
- **PC11.** identify common surface imperfections and carry out further polishing as per the requirement
- **PC12.** use the relevant Industry 4.0 manufacturing technologies to ensure interconnectivity, automation, machine learning, and real-time data collection and analysis
- **PC13.** follow the relevant health and safety guidelines to minimise the impact of occupational hazards
- **PC14.** ensure to polish the required number of workpieces within the given timescales









- **PC15.** coordinate with the supervisor or other relevant personnel to resolve any complex issues experienced with polishing, ensuring minimum impact on the productivity
- **PC16.** carry out minor repair and maintenance of the polishing tools and equipment and store them safely in the designated storage area
- **PC17.** isolate the relevant tools and equipment appropriately after use
- **PC18.** collect and dispose of the industrial waste appropriately in compliance with the relevant environmental regulations and organisational policies
- **PC19.** carry out relevant documentation such as job card, progress and incident reports as per the organisational procedure

Use resources optimally

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

- **PC20.** use various resources optimally in various tasks and processes
- PC21. connect the electrical tools and equipment safely and turn them off when they are not in use

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- **KU1.** the importance of working in a safe and hygienic work environment
- **KU2.** applicable documentation requirements in the job role
- **KU3.** the concepts and benefits of Industry 4.0 and Industrial Internet of Things (IIoT)
- **KU4.** the surface imperfections/defects that can be removed/repaired through manual polishing
- **KU5.** various hazards associated with carrying out the manual polishing, and how to minimise them
- **KU6.** use of the relevant Personal Protective Equipment (PPE) during the polishing operations
- **KU7.** different types of polishable metals, metal alloys and non-metals, such as cast iron, zinc/zinc alloy, bronze, low-carbon steel, stainless steel, coated materials, aluminium/aluminium alloy, copper/copper alloy, etc.
- **KU8.** use of the terminology associated with polishing procedures
- **KU9.** use of different types of polishing media for polishing different types of materials, such as alumina, aluminium oxide, silicon carbide, diamond dust, Tripoli, calcium oxide, iron oxide, etc.
- **KU10.** use of the relevant tools and equipment for installing, fitting and adjusting abrasive belts on polishing machines
- **KU11.** the relevant tools and techniques for fitting and dressing grinding wheels, mops and buffs
- **KU12.** different types of relevant polishing methods and the criteria for selecting one
- **KU13.** different types of polishing equipment, such as abrasive belts for grinders, pedestal grinders and polishers, flat wheels, fabric mops and brushes with underhand and overhand techniques, flexible drive appliances, etc.
- **KU14.** different types of compounds/ abrasives used in polishing, such as buffing compounds, cutting compounds and abrasives
- **KU15.** the effects of different types and grades of polishing media on surface finish
- **KU16.** the importance of following specific polishing sequence and procedures









- **KU17.** the importance and process of checking the suitability of different materials with the selected abrasive
- **KU18.** the importance and process of securing the workpiece/component appropriately using the relevant work holding device
- **KU19.** how to identify common surface imperfections/defects and non-conformance to specifications
- **KU20.** how to resolve common issues experienced while polishing a variety of materials
- **KU21.** the appropriate action to be taken in case the surface imperfections/defects on a workpiece/ components cannot be removed/repaired
- **KU22.** the importance of carrying out regular repair and maintenance of the tools and equipment and storing them at the designated storage after use
- **KU23.** 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. communicate politely and professionally
- **GS5.** plan and prioritise tasks to ensure timely completion
- **GS6.** coordinate with co-workers to achieve the work objectives
- **GS7.** identify possible disruptions to work and take appropriate preventive measures
- **GS8.** evaluate all possible solutions to a problem to select the best one
- GS9. take prompt decisions to deal with workplace emergencies and accidents









Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Prepare for manual polishing	10	15	-	-
PC1. determine the polishing requirements and specifications, such as surface texture, finish and tolerance requirements, by referring to the job instructions sheet	2	3	-	-
PC2. coordinate with the supervisor to seek clarification regarding the work to be completed, if required	2	3	-	-
PC3. check the availability of the components/ workpieces to be polished along with the required tools, equipment, and consumables as per the job requirements	2	3	-	-
PC4. prepare the work area for the polishing operations as per organisational procedure, ensuring there are no hazards in the work area	2	3	-	-
PC5. select the appropriate polishing method as per the work requirements	2	3	-	-
Carry out manual polishing	18	51	-	-
PC6. set up abrasive belts, grinding wheels and mops according to the requirement	2	3	-	-
PC7. install polishing mops and buffs following the standard procedure	1	4	-	-
PC8. set the component/ workpiece using the appropriate positioning and work holding device	1	4	-	-
PC9. carry out manual polishing as per the required specifications	2	3	-	-
PC10. check the polished workpieces to ensure conformance to the applicable quality standards	1	4	-	-
PC11. identify common surface imperfections and carry out further polishing as per the requirement	1	4	-	-









Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. use the relevant Industry 4.0 manufacturing technologies to ensure interconnectivity, automation, machine learning, and real-time data collection and analysis	1	4	-	-
PC13. follow the relevant health and safety guidelines to minimise the impact of occupational hazards	1	4	-	-
PC14. ensure to polish the required number of workpieces within the given timescales	1	4	-	-
PC15. coordinate with the supervisor or other relevant personnel to resolve any complex issues experienced with polishing, ensuring minimum impact on the productivity	1	4	-	-
PC16. carry out minor repair and maintenance of the polishing tools and equipment and store them safely in the designated storage area	2	3	-	-
PC17. isolate the relevant tools and equipment appropriately after use	1	4	-	-
PC18. collect and dispose of the industrial waste appropriately in compliance with the relevant environmental regulations and organisational policies	1	3	-	-
PC19. carry out relevant documentation such as job card, progress and incident reports as per the organisational procedure	2	3	-	-
Use resources optimally	2	4	-	-
PC20. use various resources optimally in various tasks and processes	1	2	-	-
PC21. connect the electrical tools and equipment safely and turn them off when they are not in use	1	2	-	-
NOS Total	30	70	-	-









National Occupational Standards (NOS) Parameters

NOS Code	CSC/N0703
NOS Name	Carry out manual polishing on various metals and metal alloy components
Sector	Capital Goods
Sub-Sector	Machine Tools, Plastics Manufacturing Machinery, Textile Manufacturing Machinery, Process Plant Machinery, Electrical and Power Machinery, Light Engineering Goods
Occupation	Coating and Painting
NSQF Level	2
Credits	2
Version	3.0
Last Reviewed Date	NA
Next Review Date	31/03/2024
NSQC Clearance Date	31/03/2021

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 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	20
CSC/N1336.Coordinate with co- workers to achieve work efficiency	30	70	-	-	100	20
CSC/N0113.Carry out polishing using the relevant machinery, tools and equipment	31	69	0	0	100	50
DGT/VSQ/N0101.Employability Skills (30 Hours)	20	30	-	-	50	10
Total	111	239	-	-	350	100

Optional: 1 Polisher - Manual

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
CSC/N0703.Carry out manual polishing on various metals and metal alloy components	30	70	0	0	100	30
Total	30	70	-	-	100	30









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









Glossary

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









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