Operator- Conventional Turning

QP Code: CSC/Q0110

Version: 2.0

NSQF Level: 3

Capital Goods Skill Council || 1st Floor, L-29, Outer Circle, Connaught Place
New Delhi – 110001

Contents

CSC/Q0110: Operator- Conventional Turning

Brief Job Description

An Operator- Conventional Turning is responsible for carrying out turning operations using a conventional turning machine. The individual carries out turning operations as per the given instructions to ensure the machined components have the required features and specifications. The person also carries out minor repair and maintenance of the turning machine.

Personal Attributes

The individual must be physically fit to work for long durations with concentration. The person must have basic communication, numerical and problem-solving skills, with the ability to work in coordination with others to achieve the work objectives.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

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

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

3. CSC/N0110: Operate conventional turning machine to machine a variety of components

Qualification Pack (QP) Parameters

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
Country	India
NSQF Level	3
Aligned to NCO/ISCO/ISIC Code	NCO-2015/8211.15

Minimum Educational Qualification & Experience	Ability to Read and Write with 5 years of experience in the relevant field OR 5th Class Pass with 3 years of experience in the relevant field OR 8th Class Pass with 1 year of experience in the relevant field OR Class 8th + ITI (Mechanical/Electrical and other relevant fields) OR Class 10th
Minimum Level of Education for Training in School	
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	
Next Review Date	
Deactivation Date	
NSQC Approval Date	
Version	2.0
Reference code on NQR	2015/CCM/GCSC/00001
NQR Version	1.0

CSC/N1335: Follow the health and safety practices at 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

This unit/task 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

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	
Next Review Date	
Deactivation Date	
NSQC Clearance Date	

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

This unit/task 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 tone and pitch in effective communication
KU7. importance of avoiding casual expletives and unpleasant terms while communicating professional circles
KU8. the importance of maintaining discipline and ethical behaviour at work
KU9. the common reasons for interpersonal conflict and how to resolve them
KU10. the importance of developing effective working relationships for professional success
KU11. how expressing and addressing grievances appropriately and effectively
KU12. the importance and process of planning daily tasks to ensure their timely completion and efficient use of time
KU13. the importance of adhering to the limits of authority at work
KU14. the importance of following the applicable quality standards and timescales at work
KU15. the importance of coordinating with the co-workers to achieve the work objectives efficiently
KU16. the relevant documentation requirements
KU17. the importance of providing appropriate information clearly and systematically in work documents
KU18. the escalation matrix to be followed to deal with out of authority tasks and concerns
KU19. the importance and process of mentoring and assisting subordinates in the execution of their work responsibilities
KU20. how to identify possible disruptions to work prevent them
KU21. how to use various resources efficiently to ensure maximum utilisation and minimum wastage
KU22. the recommended practices to be followed at work to avoid and resolve conflicts at work
KU23. the importance and process of efficient and timely dissemination of information to the authorised personnel
KU24. how to communicate clearly and politely to ensure effective communication
KU25. 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

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	
Next Review Date	
Deactivation Date	
NSQC Clearance Date	

CSC/N0110: Operate conventional turning machine to machine a variety of components

Description

This OS unit is about setting up a conventional turning machine for use and operating it to carry out turning operations on a variety of components as per the given specifications. It also covers resource optimisation.

Scope

This unit/task covers the following:
- Prepare for carrying out turning operations
- Carry out turning operations
- Use resources optimally

Elements and Performance Criteria

Prepare for carrying out turning operations

To be competent, the user/individual on the job must be able to:
- **PC1.** check the calibration date of all the measuring equipment to ensure it has not expired
- **PC2.** determine the job specifications/ machining requirements by referring to the valid and approved documents, such as job card, operational drawings, approved sketches/illustrations, work drawings, assembly drawings, etc.
- **PC3.** extract the relevant information such as tapping sizes and threads; feeds and speeds; component ratings; machining symbols and tolerances from reference charts, tables, graphs
- **PC4.** check the process sheet and match it with the received drawings and other specifications
- **PC5.** select the appropriate tools, equipment and measuring instruments to be used during the turning operations, and check them to ensure they are not worn out or damaged
- **PC6.** check the availability of the required raw material for carrying out turning operations
- **PC7.** check the raw material/ components to be machined to ensure they are free from foreign objects, dirt and contamination and have the recommended surface texture, limits and tolerances according to the process sheet
- **PC8.** check the post-machining sheet to determine if the component meets the applicable quality standards from the previous machining operations
- **PC9.** prepare the work area for turning operations, ensuring there are no hazards in the area
- **PC10.** plan to carry out the required turning activities and the sequence of operations as per the specifications
- **PC11.** follow the recommended safe working practices
- **PC12.** check the runout of chuck and the taper of the tailstock
- **PC13.** coordinate with the machine setter to check the machine is ready for use
- **PC14.** prepare for carrying out turning operations by mounting, positioning and setting a range of work holding devices and cutting tools, such as chuck, faceplate, centre drills, twist/core drills, reamers, etc.
- **PC15.** position and secure the work holding devices to the machine spindle
- **PC16.** secure the workpiece/ component in a chuck or work holding device using the appropriate fixture, ensuring no distortion

Carry out turning operations

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

PC17. set the machine tool speeds and feeds to achieve the given component specifications

PC18. operate the machine tool controls safely as per the manufacturer's instructions, both in hand and power modes

PC19. identify abnormal noises coming from the machine and component, and adjust the feed and Revolutions Per Minute (RPM), as required

PC20. check the condition of the tools being used and repair them, as required

PC21. follow the recommended process to stop and restart the turning machine during emergencies

PC22. check the geometrical accuracies of components, such as diameter on multiple points, taper, surface finishing, groove depth and width, drill depth, Outer Diameter (OD)/Inner Diameter (ID), threading quality and dimensions

PC23. check for the permitted grinding margin on OD/ID

PC24. use lathes and other relevant accessories such as the saddle, capstan/turret head, compound slide, tailstock, taper turning attachments, profile attachments, fixed and travelling steadies, as per the requirement

PC25. carry out turning operations using the relevant equipment, such as solid high-speed tooling, brazed tip tooling, interchangeable tipped tooling to produce components with various features, such as surface texture and finish, breadth, width, length, etc.

PC26. follow the recommended practices to overcome the effects of backlash in machine slides and screws

PC27. carry out roughing and finishing appropriately to achieve the required surface finish and dimensional accuracy

PC28. follow the recommended practices to minimise tool wear

PC29. use the appropriate cutting fluids for different types of materials, such as steel, stainless steel, aluminium, aluminium alloys, copper/copper alloys, cast iron, etc.

PC30. check the diameter, parallelism, surface finish, length, width, concentricity and other critical parameters of the machined components using a range of relevant equipment, such as micrometre, Vernier/digital/dial calliper, dial test indicators (DTI), etc.

PC31. ensure the machined components are free from false tool cuts, burrs and sharp edges

PC32. check the dimensional accuracy by taking a trial cut

PC33. perform the relevant quality checks using the appropriate equipment on the machined components before removing them from the machine

PC34. record the measured values as per the organisational standards and complete the post-machining inspection sheet

PC35. identify inconsistencies in dimensions due to tool wear and correct the offsets accordingly

PC36. adjust various machine settings to maintain the desired accuracy as per the operational requirements

PC37. identify the worn-out and damaged tools and equipment

PC38. sharpen or replace the worn-out/ damaged tools, using the necessary equipment, and modify tool offsets according to the new tools

PC39. use the relevant Industry 4.0 manufacturing technologies to ensure interconnectivity, automation, machine learning, and real-time data collection and analysis

PC40. follow the relevant safety guidelines while sharpening/ replacing the worn-out/damaged tools

PC41. coordinate with the supervisor or other relevant personnel to resolve any complex issues encountered with the turning operations

PC42. isolate the turning machine safely after use

PC43. carry out regular maintenance of the machine after use, such as cleaning and oiling

PC44. collect and dispose of the industrial waste appropriately as per the applicable environmental regulations and organisational procedures

PC45. carry out necessary documentation as per the organisational procedure on the completion of machining operations

PC46. ensure compliance with the applicable quality standards

Use resources optimally

To be competent, the user/individual on the job must be able to:
PC47. optimise the usage of electricity and other resources in various tasks and processes
PC48. connect the electrical tools and equipment safely, and turn them off when not in use

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:
KU1. the symbols and conventions appropriate to the applicable ISO standards
KU2. the applicable costs, such as production cost, machine hour rate, raw material cost, tool cost, coolant cost, overheads, cycle time, idle time, cost of machine idling, part rejection cost, etc.
KU3. the process of selecting cutting tools, tool materials, chip breaker geometry, cutting parameters, etc.
KU4. the effect of tool nose radius, speed and feed rate on surface finish
KU5. the impact of depth of cut on chatter and surface finish
KU6. use of the relevant Personal Protective Equipment
KU7. the concepts and benefits of Industry 4.0 and Industrial Internet of Things (IIoT)
KU8. how to interpret the component drawings to determine the specifications required to achieve through the machining of components
KU9. various hazards associated with carrying out turning operations and how to minimise them
KU10. the purpose and process of carrying out turning
KU11. the process of checking various safety mechanisms available on a conventional turning machine for the correct functioning and using them
KU12. how to tighten cam locks or other securing devices appropriately
KU13. the importance of checking the process sheet and matching it with the received drawings and other material
KU14. 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
KU15. how to run the part program in single block mode and the importance of checking the tool condition after each operation
KU16. the importance of maintaining the recommended coolant levels and positioning the coolant nozzles appropriately
KU17. the importance of checking the sequence of the program as per the process sheet
KU18. the importance of checking for the presence of the appropriate tools in the relevant pocket of Automatic Tool Changer (ATC)
KU19. how to identify abnormal noises coming from the machine and component
KU20. how to adjust the feed and Revolutions Per Minute (RPM)
KU21. the importance of checking the condition of tools being used in machining at appropriate intervals during the process
KU22. how to identify inconsistencies in the dimensions due to tool wear and the process of correcting the offsets accordingly
KU23. how to adjust the machine settings to maintain the desired accuracy
KU24. the process of sharpening or replacing the worn-out/ damaged tools, using the necessary equipment
KU25. the importance of modifying the tool offsets according to the new tools replacing them
KU26. the relevant safety guidelines to be following while sharpening/ replacing the worn-out/damaged tools
KU27. the importance of keeping the work area clean and hazard-free
KU28. how to use the metric system of measurement

KU29. various features of lathes and use of relevant accessories such as saddle, compound slide, tailstock, taper turning attachments, profile attachments, fixed and travelling stays, etc.

KU30. the classification and properties of various tool materials

KU31. the factors that affect the selection of cutting feeds, and speed and the depth of cut

KU32. use of different types of tooling, such as solid high-speed tooling, brazed tip tooling, interchangeable tipped tooling, indexable insert tooling

KU33. use of different types of cutting tools such as recess/groove, chamfer, centre drill, twist/core drill, reamer, thread tool, etc.

KU34. various component features that can be produced on metal and non-metal components through turning operations, such as flat face, parallel, tapered, eccentric diameters; drilled, reamed, bored holes; chamfers, grooves/undercuts, profile forms, internal and external threads, parting off, knurls or special finish, etc.

KU35. the effects of backlash in machine slides and screws, and how to resolve this

KU36. the importance of following the safety instructions and warning signs on the machine

KU37. different types of cutting fluids and their properties

KU38. the importance of clamping the workpiece in a chuck/work holding device, and how incorrect clamping can cause distortion in the finished components

KU39. the relevant equipment to be used for checking critical quality parameters, such as external and internal micrometre, Vernier/digital/dial calliper, dial test indicators (DTI), surface finish equipment, steel rules, depth Vernier, etc.

KU40. various critical parameters to be checked, such as external and internal diameters, eccentricity, parallelism, bore/hole size/fit, angle/taper, surface finish, length, depth, position, width, concentricity, ovality, straightness, squareness, etc.

KU41. the documentation requirements relevant to the job role

KU42. 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

National Occupational Standards (NOS) Parameters

NOS Code	CSC/N0110
NOS Name	Operate conventional turning machine to machine a variety of components
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	
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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 their importance in NOS. SSC will also lay down the proportion of marks for Theory and Skills Practical for each PC.

3. The assessment for the theory part will/may be based on a knowledge bank of questions approved by 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 a minimum of 50% 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: 50

(**Please note**: Every Trainee should score a minimum aggregate passing percentage as specified above, to successfully clear the Qualification Pack assessment.)

Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage

						19
Total						

Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training
CNC	Computer Numerically Controlled
CAD	Computer Aided Design
2D	2 Dimensional
3D	3 Dimensional
CO2	Carbon Dioxide
CPR	Cardiac Pulmonary Resuscitation
ISO	International Organization For Standardization
PPE	Personal Protective Equipment
CD	Compact Disc
DVD	Digital Video Disc Or Digital Versatile Disc

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 that 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 summary of the unit content. This would behelpful 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.