Automotive Conventional Machining Technician

QP Code: ASC/Q3510

Version: 2.0

NSQF Level: 3

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Contents

ASC/Q3510: Automotive Conventional Machining Technician

Brief Job Description

The individual is primarily involved in various machining and inspection work on conventional/manual machines such as quality verification, minor repair work, change of worn out tools, re-setting of the tools, etc.

Personal Attributes

The person should be patient, organised, team-oriented and have the ability to work for long hours in adverse conditions. They should be keen observers and have an eye for detail and quality.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. ASC/N9803: Organize work and resources (Manufacturing)
2. ASC/N9805: Interpret engineering drawing
3. ASC/N3536: Perform turning operations on conventional lathe
4. ASC/N3537: Perform drilling, reaming, tapping and boring operations on conventional lathe
5. ASC/N3539: Perform grinding operations on conventional lathe
6. ASC/N3538: Perform milling operations on conventional lathe
7. DGT/VSQ/N0102: Employability Skills (60 Hours)

Qualification Pack (QP) Parameters

Sector	Automotive
Sub-Sector	Manufacturing
Occupation	Machining Operation
Country	India
NSQF Level	3
Credits	20

Aligned to NCO/ISCO/ISIC Code	NCO- 2015/7223.0601, 7223.1701, 7224.0402, 7223.1201
Minimum Educational Qualification & Experience	8th grade pass and pursuing continuous schooling in regular school with vocational subject OR 8th Class with 2 Years of experience OR 8th grade pass with 2 years of NTC (or NAC) OR 10th Class OR Certificate-NSQF (Automotive Machining Operator Level 2.5) with 1 Year of experience
Minimum Level of Education for Training in School	
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	29-01-2021
Next Review Date	29-01-2026
NSQC Approval Date	29-01-2021
Version	2.0

ASC/N9803: Organize work and resources (Manufacturing)

Description

This NOS unit is about implementing safety, planning work, adopting sustainable practices for optimising use of resources

Scope

The scope covers the following :

- Maintain safe and secure working environment
- Health and hygiene
- Perform work as per quality standards
- Effective waste management practices
- Material/energy conservation practices

Elements and Performance Criteria

Maintain safe and secure working environment

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

PC1. identify hazardous activities and the possible causes of risks or accidents in the workplace

PC2. follow safe working practices while dealing with hazards to ensure safety of self and others

PC3. carry out routine check of the machine for identifying potential hazards

PC4. use appropriate protective clothing/equipment for specific tasks and work

PC5. follow safety hazards and preventive techniques during fire drill

PC6. report any identified breaches in health, safety and security policies and procedures to the designated person

Health and hygiene

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

PC7. ensure workstation and equipment are regularly clean and sanitized

PC8. clean hands with soap, alcohol-based sanitizer regularly

PC9. avoid contact with ill people and self-isolate in a similar situation

PC10. wear and dispose PPEs regularly and appropriately

PC11. report advanced hygiene and sanitation issues to appropriate authority

PC12. follow stress and anxiety management techniques

Perform work as per quality standards

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

PC13. ensure that work is accomplished as per the requirements within the specified timeline

PC14. ensure team goals are given preference over individual goals

Effective waste management practices

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

PC15. follow the fundamentals of 5S for waste management

PC16. segregate waste into different categories

PC17. follow processes specified for disposal of hazardous waste

PC18. identify recyclable, non-recyclable and hazardous waste

PC19. dispose non-recyclable, recyclable and reusable waste appropriately at identified location

Material/energy conservation practices

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

PC20. identify ways to optimize usage of material in various tasks/activities/processes

PC21. check for spills/leakages in various tasks/activities/processes

PC22. plug spills/leakages and escalate to appropriate authority if unable to rectify

PC23. check if the equipment/machine is functioning normally before commencing work and rectify wherever required

PC24. report malfunctioning (fumes/ sparks/emission/vibration/noise) and lapse in maintenance of equipment

PC25. ensure electrical equipment and appliances are properly connected and turned off when not in use

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. organisation procedures for health, safety and security, individual role and responsibilities in this context

KU2. the organisation's emergency procedures for different emergency situations and the importance of following the same

KU3. evacuation procedures for workers and visitors

KU4. how and when to report hazards as well as the limits of responsibility for dealing with hazards

KU5. potential hazards, risks and threats based on the nature of work

KU6. preventative and remedial actions to be taken in case of exposure to toxic material

KU7. various types of fire extinguisher

KU8. various types of safety signs and their meaning

KU9. appropriate first aid treatment relevant to different condition e.g. bleeding, minor burns, eye injuries etc.

KU10. relevant standards, procedures and policies related to 5S followed in the company

KU11. the various materials used and their storage norms

KU12. efficient utilisation of material and water

KU13. basics of electricity and prevalent energy efficient devices

KU14. common practices of conserving electricity

KU15. common sources and ways to minimize pollution

KU16. categorisation of waste into dry, wet, recyclable, non-recyclable and items of single-use plastics

KU17. usage of different colors of dustbins

KU18. waste management techniques

KU19. significance of greening

Generic Skills (GS)

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

GS1. read safety instructions/guidelines
GS2. modify work practices to improve them
GS3. ask for clarifications from superior about the job requirement
GS4. work with supervisors/team members to carry out work related tasks
GS5. complete tasks efficiently and accurately within stipulated time
GS6. inform/report to concerned person in case of any problem
GS7. make timely decisions for efficient utilization of resources
GS8. write reports such as accident report, in at least English/regional language
GS9. be punctual and utilize time efficiently

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Maintain safe and secure working environment	**11**	**5**	**-**	**7**
PC1. identify hazardous activities and the possible causes of risks or accidents in the workplace	2	1	-	2
PC2. follow safe working practices while dealing with hazards to ensure safety of self and others	2	-	-	1
PC3. carry out routine check of the machine for identifying potential hazards	2	1	-	1
PC4. use appropriate protective clothing/equipment for specific tasks and work	2	1	-	1
PC5. follow safety hazards and preventive techniques during fire drill	2	1	-	1
PC6. report any identified breaches in health, safety and security policies and procedures to the designated person	1	1	-	1
Health and hygiene	**7**	**5**	**-**	**2**
PC7. ensure workstation and equipment are regularly clean and sanitized	2	2	-	1
PC8. clean hands with soap, alcohol-based sanitizer regularly	1	1	-	1
PC9. avoid contact with ill people and self-isolate in a similar situation	1	-	-	-
PC10. wear and dispose PPEs regularly and appropriately	1	-	-	-
PC11. report advanced hygiene and sanitation issues to appropriate authority	1	1	-	-
PC12. follow stress and anxiety management techniques	1	1	-	-
Perform work as per quality standards	**5**	**3**	**-**	**2**
PC13. ensure that work is accomplished as per the requirements within the specified timeline	2	2	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. ensure team goals are given preference over individual goals	3	1	-	1
Effective waste management practices	**15**	**10**	**-**	**4**
PC15. follow the fundamentals of 5S for waste management	3	2	-	1
PC16. segregate waste into different categories	2	1	-	-
PC17. follow processes specified for disposal of hazardous waste	2	2	-	1
PC18. identify recyclable, non-recyclable and hazardous waste	4	2	-	1
PC19. dispose non-recyclable, recyclable and reusable waste appropriately at identified location	4	3	-	1
Material/energy conservation practices	**12**	**7**	**-**	**5**
PC20. identify ways to optimize usage of material in various tasks/activities/processes	2	1	-	1
PC21. check for spills/leakages in various tasks/activities/processes	2	1	-	1
PC22. plug spills/leakages and escalate to appropriate authority if unable to rectify	2	1	-	-
PC23. check if the equipment/machine is functioning normally before commencing work and rectify wherever required	2	2	-	1
PC24. report malfunctioning (fumes/ sparks/emission/vibration/noise) and lapse in maintenance of equipment	2	1	-	1
PC25. ensure electrical equipment and appliances are properly connected and turned off when not in use	2	1	-	1
NOS Total	**50**	**30**	**-**	**20**

National Occupational Standards (NOS) Parameters

NOS Code	ASC/N9803
NOS Name	Organize work and resources (Manufacturing)
Sector	Automotive
Sub-Sector	Generic
Occupation	Generic
NSQF Level	3
Credits	TBD
Version	1.0
Last Reviewed Date	29/07/2021
Next Review Date	29/07/2026
NSQC Clearance Date	29/07/2021

ASC/N9805: Interpret engineering drawing

Description

This NOS unit is about reading and interpreting all concepts, symbols, methods, views, etc. of engineering drawing.

Scope

The scope covers the following :

- Interpret information from various views, projection, 2D and 3D shapes
- Identify drawing standards and symbols
- Modification and storage of drawing

Elements and Performance Criteria

Interpret information from various views, projection, 2D and 3D shapes

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

PC1. interpret engineering drawing's uniqueness, dimensions and important features in 2D and 3D shapes

PC2. identify the difference between 2D and 3D shapes

PC3. explain difference between first angle projection and third angle projection in mechanical engineering drawing

PC4. interpret all the 3 axes (x, y and z axis) and geometrical shapes (cones, cylinder, sphere, cuboid, etc) on to a 2D and 3D projection

PC5. identify details of the machine component which are not clearly visible by interpreting section views

Identify drawing standards and symbols

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

PC6. interpret Geometric Dimensioning and Tolerencing (GD&T) symbols in the drawings

PC7. interpret symbols of Radius, controlled radius, spherical radius, diameter, spherical diameter, square, counterbore, spotface, depth, countersink, “by”, maximum dimension, minimum dimension, reference, dimension origin etc

PC8. identify the sequence of operations which enables the selection and prioritization of the datums

PC9. read and interpret information from Tolerance Zone boundaries for part features in terms of shape and size

Modification and storage of drawing

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

PC10. observe any modification, changes required in the drawing and communicate the same to the concerned team in the organization

PC11. store the drawings in an easily accessible place, avoiding damage from moisture, chemicals and fire

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. relevant organisational standards such as work standard, Standard Operating Procedure, quality process, maintenance standards etc. followed in the company
KU2. importance of cycle-time and required output as per work order and work instructions
KU3. drawing standards used by the company
KU4. use of drawing tools such as scales, compass, types of pencils, CAD and CAM software etc.
KU5. the basics of engineering drawing, orthographic projection, isometric projection, GD&T etc.
KU6. importance of various projections, views, symbols and dimensions of drawing
KU7. use of geometric shapes like lines, angles, circles, etc for interpreting the drawing

Generic Skills (GS)

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

GS1. read and interpret workplace related drawing
GS2. communicate the changes and requirements to supervisor by using relevant drawing terms and nomenclature
GS3. attentively listen and comprehend the information given by the supervisor/team members
GS4. write in English/regional language
GS5. recognise problem in drawing and take suitable action
GS6. analyse and apply the information gathered from observation, experience, reasoning or communication to act efficiently

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Interpret information from various views, projection, 2D and 3D shapes	**21**	**11**	**-**	**10**
PC1. interpret engineering drawing's uniqueness, dimensions and important features in 2D and 3D shapes	5	3	-	2
PC2. identify the difference between 2D and 3D shapes	4	2	-	2
PC3. explain difference between first angle projection and third angle projection in mechanical engineering drawing	4	-	-	2
PC4. interpret all the 3 axes (x, y and z axis) and geometrical shapes (cones, cylinder, sphere, cuboid, etc) on to a 2D and 3D projection	5	3	-	2
PC5. identify details of the machine component which are not clearly visible by interpreting section views	3	3	-	2
Identify drawing standards and symbols	**23**	**15**	**-**	**8**
PC6. interpret Geometric Dimensioning and Tolerencing (GD&T) symbols in the drawings	6	4	-	2
PC7. interpret symbols of Radius, controlled radius, spherical radius, diameter, spherical diameter, square, counterbore, spotface, depth, countersink, “by”, maximum dimension, minimum dimension, reference, dimension origin etc	6	4	-	2
PC8. identify the sequence of operations which enables the selection and prioritization of the datums	5	3	-	2
PC9. read and interpret information from Tolerance Zone boundaries for part features in terms of shape and size	6	4	-	2
Modification and storage of drawing	**6**	**4**	**-**	**2**
PC10. observe any modification, changes required in the drawing and communicate the same to the concerned team in the organization	3	2	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. store the drawings in an easily accessible place, avoiding damage from moisture, chemicals and fire	3	2	-	1
NOS Total	**50**	**30**	**-**	**20**

National Occupational Standards (NOS) Parameters

NOS Code	ASC/N9805
NOS Name	Interpret engineering drawing
Sector	Automotive
Sub-Sector	Generic
Occupation	Generic
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	30/09/2021
Next Review Date	30/09/2024
NSQC Clearance Date	30/09/2021

ASC/N3536: Perform turning operations on conventional lathe

Description

This NOS unit is about performing and finishing turning operations on the Conventional/Manual lathe machine as per the given work order and the standards specified by the organization.

Scope

The scope covers the following :

- Prepare for turning operations
- Perform turning operations
- Perform post-machining operations

Elements and Performance Criteria

Prepare for turning operations

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

PC1. identify the fInal output product based on engineering drawing

PC2. identify the tools, measuring instruments and input materials required for the job

PC3. check the raw material, tools and equipment for any defects and that they are as per the required quality standards

PC4. follow the tooling instructions for fixtures, cutting tools, jigs, gauges etc., as specified in the Operating Manual/Work Instructions and collect all the required items from the store

PC5. set-up the conventional lathe machine to perform turning operations

PC6. adjust the machine controls to ensure conformance with the specified tolerances

PC7. mount, install and align tools, attachments and fixtures on machine by using hand tools and precision measuring instruments

PC8. lift the work piece/metal stock manually or by hoist, position the same securely on the machine bed by using workholding devices and verify their positions with measuring instruments if required

PC9. select and install pre-set toolings in tool posts

Perform turning operations

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

PC10. set the machine parameters like cutting speed, depth of cut and feed rate and position cutting tool and work piece as per work instructions

PC11. move cutter or turning hand wheel manually for machining the work piece as per the required specifications

PC12. start the turning machine, produce the component and inspect the first-run piece for conformance to specifications by using precision gauges

PC13. run the machine for mass production of components, if the first run-piece meets the specified requirements

Perform post-machining operations

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

PC14. check the component as per the control plan, work instructions for product quality

PC15. note down the observations of the basic inspection process and identify pieces which are as per the specified standards

PC16. separate the completed pieces into Ok pieces and defective pieces which can be repaired/reworked and pieces which are beyond repair and maintain records of each category

PC17. observe the machine operations for any malfunctions/defects in the component and immediately inform the supervisor/maintenance team for correction

PC18. replace worn out tools timely and safely with new tools and perform minor maintenance activities

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. Standard Operating Procedures (SOP) for operating the lathe machine

KU2. fundamentals of the turning machines

KU3. the process flow of the turning operations

KU4. SOP recommended by the manufacturer for using tools, jigs, fixtures, measuring instruments etc. used during the machining processes

KU5. the impact of various machining parameters on the final product

KU6. the use of various cutting tools for different machining operations

KU7. how to load and unload lathe machine parts safely

KU8. SOP recommended by the organisation for checking irregularities in the product/work piece

KU9. how to compute unspecified dimensions and machine settings

KU10. safety requirements for lathe machine and tools during the machining work

KU11. the post machining processes like inspection, cleaning, maintenance etc.

KU12. the organisational standard practices for performing maintenance activities

KU13. the various inspection methods for inspecting the quality of machined product

Generic Skills (GS)

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

GS1. read and interpret drawings, charts and machine readings

GS2. communicate using terms, names, grades and other nomenclature pertaining to the automotive trade

GS3. communicate effectively at the workplace

GS4. attentively listen and comprehend the information given by the lead technician/team members

GS5. write observations and any work related information in English/regional language

GS6. recognise a workplace problem and take suitable action

GS7. analyse and apply the information gathered from observation, experience, reasoning or communication to act efficiently

GS8. plan and organize tools, machines and consumables for carrying out machining job

GS9. complete the assigned tasks with minimum supervision

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Prepare for turning operations	**16**	**22**	**-**	**11**
PC1. identify the fInal output product based on engineering drawing	2	1	-	1
PC2. identify the tools, measuring instruments and input materials required for the job	2	3	-	2
PC3. check the raw material, tools and equipment for any defects and that they are as per the required quality standards	2	2	-	1
PC4. follow the tooling instructions for fixtures, cutting tools, jigs, gauges etc., as specified in the Operating Manual/Work Instructions and collect all the required items from the store	2	2	-	1
PC5. set-up the conventional lathe machine to perform turning operations	2	3	-	2
PC6. adjust the machine controls to ensure conformance with the specified tolerances	1	3	-	1
PC7. mount, install and align tools, attachments and fixtures on machine by using hand tools and precision measuring instruments	2	3	-	1
PC8. lift the work piece/metal stock manually or by hoist, position the same securely on the machine bed by using workholding devices and verify their positions with measuring instruments if required	2	3	-	2
PC9. select and install pre-set toolings in tool posts	1	2	-	-
Perform turning operations	**6**	**15**	**-**	**3**
PC10. set the machine parameters like cutting speed, depth of cut and feed rate and position cutting tool and work piece as per work instructions	1	3	-	1
PC11. move cutter or turning hand wheel manually for machining the work piece as per the required specifications	1	3	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. start the turning machine, produce the component and inspect the first-run piece for conformance to specifications by using precision gauges	3	5	-	-
PC13. run the machine for mass production of components, if the first run-piece meets the specified requirements	1	4	-	1
Perform post-machining operations	**8**	**13**	**-**	**6**
PC14. check the component as per the control plan, work instructions for product quality	2	3	-	-
PC15. note down the observations of the basic inspection process and identify pieces which are as per the specified standards	1	2	-	2
PC16. separate the completed pieces into Ok pieces and defective pieces which can be repaired/reworked and pieces which are beyond repair and maintain records of each category	2	3	-	-
PC17. observe the machine operations for any malfunctions/defects in the component and immediately inform the supervisor/maintenance team for correction	1	2	-	2
PC18. replace worn out tools timely and safely with new tools and perform minor maintenance activities	2	3	-	2
NOS Total	**30**	**50**	**-**	**20**

National Occupational Standards (NOS) Parameters

NOS Code	ASC/N3536
NOS Name	Perform turning operations on conventional lathe
Sector	Automotive
Sub-Sector	Manufacturing
Occupation	Machining Operation
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	18/11/2020
Next Review Date	25/02/2026
NSQC Clearance Date	NA

ASC/N3537: Perform drilling, reaming, tapping and boring operations on conventional lathe

Description

This NOS unit is about carrying out various operations such as drilling, reaming, tapping and boring on the Conventional/Manual lathe machine as per the given work order and the standards specified by the organization.

Scope

The scope covers the following :

- Prepare for drilling, reaming, tapping and boring operations
- Perform drilling, reaming and tapping operations
- Perform boring operations
- Perform post-machining operations

Elements and Performance Criteria

Prepare for drilling, reaming, tapping and boring operations

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

PC1. identify the final output product based on engineering drawing

PC2. identify the tools, measuring instruments and input materials required for the job

PC3. check the raw material, tools and equipment for any defects and that they are as per the required quality standards

PC4. follow the tooling instructions for fixtures, cutting tools, jigs, gauges etc., as specified in the Operating Manual/Work Instructions and collect all the required items from the store

PC5. set-up the conventional machine to perform drilling, reaming and tapping activities

PC6. adjust the machine controls to ensure conformance with the specified tolerances

PC7. mount, install and align tools, attachments and fixtures on machine by using hand tools and precision measuring instruments

PC8. lift the work piece/metal stock manually or by hoist, position the same securely on the machine bed by using workholding devices and verify their positions with measuring instruments if required

Perform drilling, reaming and tapping operations

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

PC9. set the machine parameters like cutting speed, depth of cut and feed rate and position cutting tool and work piece as per work instructions

PC10. move drilling, reaming and tapping tool or material or turning hand wheel manually to complete the operation as per specifications

PC11. start the drilling, reaming and tapping machine, produce the WIP component and inspect the first-run piece for conformance to specifications by using precision gauges

PC12. run the machine for mass production of WIP components, if the first run-piece meets the specified requirements

Perform boring operations

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

PC13. set-up the conventional boring machine to perform boring operations

PC14. set the boring tool into boring bar before positioning them for boring operations by using precision gauges and instrument

PC15. set the machine parameters like cutting speed, depth of cut and feed rate and position cutting tool and work piece as per work instructions

PC16. move tool or material manually or by turning hand wheel to complete the operation as per specifications

PC17. start the boring operation, produce the final component and inspect the first-run piece for conformance to specifications by using precision gauges

PC18. run the machine for mass production of final components, if first run-piece meets the specified requirements

Perform post-machining operations

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

PC19. check the component as per the control plan, work instructions for product quality

PC20. note down the observations of the basic inspection process and identify pieces which are as per the specified standards

PC21. separate the completed pieces into Ok pieces and defective pieces which can be repaired/reworked and pieces which are beyond repair and maintain records of each category

PC22. observe the machine operations for any malfunctions/defects in the component and immediately inform the supervisor/maintenance team for correction

PC23. replace worn out tools timely and safely with new tools and perform minor maintenance activities

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. Standard Operating Procedures (SOP) for operating the drilling reaming, tapping and boring machines

KU2. the process flow of the drilling, tapping, reaming and boring operations

KU3. SOP recommended by the manufacturer for using tools, jigs, fixtures, measuring instruments etc. used during the machining processes

KU4. the impact of various machining parameters on the final product

KU5. the use of various cutting tools for different machining operations

KU6. how to load, unload, fix and set the machine parts, tools and grinding wheels safely

KU7. SOP recommended by the organisation for checking irregularities in the product/work piece

KU8. how to compute unspecified dimensions and machine settings

KU9. safety requirements for machine and tools during the machining work

KU10. the post machining processes like inspection, cleaning, maintenance etc.

KU11. the organisational standard practices for performing maintenance activities

KU12. the various inspection methods for inspecting the quality of machined product

Generic Skills (GS)

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

GS1. read and interpret drawings, charts and machine readings

GS2. communicate using terms, names, grades and other nomenclature pertaining to the automotive trade

GS3. communicate effectively at the workplace

GS4. attentively listen and comprehend the information given by the lead technician/team members

GS5. write observations and any work related information in English/regional language

GS6. recognise a workplace problem and take suitable action

GS7. analyse and apply the information gathered from observation, experience, reasoning or communication to act efficiently

GS8. plan and organize tools, machines and consumables for carrying out machining job

GS9. complete the assigned tasks with minimum supervision

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Prepare for drilling, reaming, tapping and boring operations	**11**	**16**	**-**	**9**
PC1. identify the final output product based on engineering drawing	1	1	-	1
PC2. identify the tools, measuring instruments and input materials required for the job	2	2	-	2
PC3. check the raw material, tools and equipment for any defects and that they are as per the required quality standards	1	2	-	1
PC4. follow the tooling instructions for fixtures, cutting tools, jigs, gauges etc., as specified in the Operating Manual/Work Instructions and collect all the required items from the store	1	2	-	1
PC5. set-up the conventional machine to perform drilling, reaming and tapping activities	1	2	-	1
PC6. adjust the machine controls to ensure conformance with the specified tolerances	1	2	-	1
PC7. mount, install and align tools, attachments and fixtures on machine by using hand tools and precision measuring instruments	2	2	-	1
PC8. lift the work piece/metal stock manually or by hoist, position the same securely on the machine bed by using workholding devices and verify their positions with measuring instruments if required	2	3	-	1
Perform drilling, reaming and tapping operations	**6**	**10**	**-**	**2**
PC9. set the machine parameters like cutting speed, depth of cut and feed rate and position cutting tool and work piece as per work instructions	2	2	-	-
PC10. move drilling, reaming and tapping tool or material or turning hand wheel manually to complete the operation as per specifications	1	1	-	1
PC11. start the drilling, reaming and tapping machine, produce the WIP component and inspect the first-run piece for conformance to specifications by using precision gauges	2	4	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. run the machine for mass production of WIP components, if the first run-piece meets the specified requirements	1	3	-	-
Perform boring operations	**8**	**16**	**-**	**6**
PC13. set-up the conventional boring machine to perform boring operations	1	2	-	1
PC14. set the boring tool into boring bar before positioning them for boring operations by using precision gauges and instrument	1	2	-	1
PC15. set the machine parameters like cutting speed, depth of cut and feed rate and position cutting tool and work piece as per work instructions	2	2	-	1
PC16. move tool or material manually or by turning hand wheel to complete the operation as per specifications	1	2	-	1
PC17. start the boring operation, produce the final component and inspect the first-run piece for conformance to specifications by using precision gauges	2	5	-	1
PC18. run the machine for mass production of final components, if first run-piece meets the specified requirements	1	3	-	1
Perform post-machining operations	**5**	**8**	**-**	**3**
PC19. check the component as per the control plan, work instructions for product quality	1	-	-	1
PC20. note down the observations of the basic inspection process and identify pieces which are as per the specified standards	1	2	-	-
PC21. separate the completed pieces into Ok pieces and defective pieces which can be repaired/reworked and pieces which are beyond repair and maintain records of each category	1	2	-	1
PC22. observe the machine operations for any malfunctions/defects in the component and immediately inform the supervisor/maintenance team for correction	1	2	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC23. replace worn out tools timely and safely with new tools and perform minor maintenance activities	1	2	-	-
NOS Total	**30**	**50**	**-**	**20**

National Occupational Standards (NOS) Parameters

NOS Code	ASC/N3537
NOS Name	Perform drilling, reaming, tapping and boring operations on conventional lathe
Sector	Automotive
Sub-Sector	Manufacturing
Occupation	Machining Operation
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	18/11/2020
Next Review Date	25/02/2026
NSQC Clearance Date	NA

ASC/N3539: Perform grinding operations on conventional lathe

Description

This NOS unit is about performing and finishing grinding on the Conventional/Manual lathe machine as per the given work order and the standards specified by the organization.

Scope

The scope covers the following :

- Prepare for grinding operations
- Perform grinding operations
- Perform post-machining operations

Elements and Performance Criteria

Prepare for grinding operations

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

PC1. identify the final output product based on engineering drawing

PC2. identify the tools, measuring instruments and input materials required for the job

PC3. check the raw material, tools and equipment for any defects and that they are as per the required quality standards

PC4. follow the tooling instructions for fixtures, cutting tools, jigs, gauges etc., as specified in the Operating Manual/Work Instructions and collect all the required items from the store

PC5. set-up the conventional grinding machine to perform grinding activities

PC6. mount, install and align tools, attachments and fixtures on machine by using hand tools and precision measuring instruments

PC7. lift the work piece/metal stock manually or by hoist, position the same securely on the machine with grinding wheels by using workholding devices and verify their positions with measuring instruments if required

Perform grinding operations

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

PC8. set the grinding parameters such as wheel revolutions, wheel approach speed, feed rate, etc. and position cutting tool and work piece as per work instructions

PC9. start the grinding machine, produce the component and inspect the first-run piece for conformance to specifications by using precision gauges

PC10. run the machine for mass production of components, if the first run-piece meets the specified requirements

Perform post-machining operations

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

PC11. check the component as per the control plan, work instructions for product quality

PC12. note down the observations of the basic inspection process and identify pieces which are as per the specified standards

PC13. separate the completed pieces into Ok pieces and defective pieces which can be repaired/reworked and pieces which are beyond repair and maintain records of each category

PC14. observe the machine operations for any malfunctions/defects in the component and immediately inform the supervisor/maintenance team for correction

PC15. replace worn out grinding wheels timely and safely with new wheels and perform minor maintenance activities

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. Standard Operating Procedures (SOP) for operating the grinding machine

KU2. the process flow of the grinding operations

KU3. SOP recommended by the manufacturer for using tools, jigs, fixtures, measuring instruments etc. used during the machining processes

KU4. the impact of various machining parameters on the final product

KU5. the use of various cutting tools for different machining operations

KU6. how to load, unload, fix and set the machine parts, tools and grinding wheels safely

KU7. SOP recommended by the organisation for checking irregularities in the product/work piece

KU8. how to compute unspecified dimensions and machine settings

KU9. safety requirements for machine and tools during the machining work

KU10. the post machining processes like inspection, cleaning, maintenance etc.

KU11. organisational standard practices for performing maintenance activities

KU12. the various inspection methods for inspecting the quality of machined product

Generic Skills (GS)

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

GS1. read and interpret drawings, charts and machine readings

GS2. communicate using terms, names, grades and other nomenclature pertaining to the automotive trade

GS3. communicate effectively at the workplace

GS4. attentively listen and comprehend the information given by the lead technician/team members

GS5. write observations and any work related information in English/regional language

GS6. recognise a workplace problem and take suitable action

GS7. analyse and apply the information gathered from observation, experience, reasoning or communication to act efficiently

GS8. plan and organize tools, machines and consumables for carrying out machining job

GS9. complete the assigned tasks with minimum supervision

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Prepare for grinding operations	**14**	**24**	**-**	**11**
PC1. identify the final output product based on engineering drawing	2	1	-	1
PC2. identify the tools, measuring instruments and input materials required for the job	2	2	-	2
PC3. check the raw material, tools and equipment for any defects and that they are as per the required quality standards	2	4	-	2
PC4. follow the tooling instructions for fixtures, cutting tools, jigs, gauges etc., as specified in the Operating Manual/Work Instructions and collect all the required items from the store	2	4	-	2
PC5. set-up the conventional grinding machine to perform grinding activities	2	5	-	2
PC6. mount, install and align tools, attachments and fixtures on machine by using hand tools and precision measuring instruments	2	5	-	1
PC7. lift the work piece/metal stock manually or by hoist, position the same securely on the machine with grinding wheels by using workholding devices and verify their positions with measuring instruments if required	2	3	-	1
Perform grinding operations	**7**	**12**	**-**	**4**
PC8. set the grinding parameters such as wheel revolutions, wheel approach speed, feed rate, etc. and position cutting tool and work piece as per work instructions	3	3	-	2
PC9. start the grinding machine, produce the component and inspect the first-run piece for conformance to specifications by using precision gauges	3	5	-	2
PC10. run the machine for mass production of components, if the first run-piece meets the specified requirements	1	4	-	-
Perform post-machining operations	**9**	**14**	**-**	**5**

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. check the component as per the control plan, work instructions for product quality	2	3	-	-
PC12. note down the observations of the basic inspection process and identify pieces which are as per the specified standards	1	2	-	1
PC13. separate the completed pieces into Ok pieces and defective pieces which can be repaired/reworked and pieces which are beyond repair and maintain records of each category	2	3	-	-
PC14. observe the machine operations for any malfunctions/defects in the component and immediately inform the supervisor/maintenance team for correction	2	3	-	2
PC15. replace worn out grinding wheels timely and safely with new wheels and perform minor maintenance activities	2	3	-	2
NOS Total	**30**	**50**	**-**	**20**

National Occupational Standards (NOS) Parameters

NOS Code	ASC/N3539
NOS Name	Perform grinding operations on conventional lathe
Sector	Automotive
Sub-Sector	Manufacturing
Occupation	Machining Operation
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	18/11/2020
Next Review Date	25/02/2026
NSQC Clearance Date	NA

ASC/N3538: Perform milling operations on conventional lathe

Description

This NOS unit is about performing and finishing milling on the Conventional/Manual lathe machine as per the given work order and the standards specified by the organization.

Scope

The scope covers the following :

- Prepare for milling operations
- Perform milling operations
- Perform post-machining operations

Elements and Performance Criteria

Prepare for Milling operations

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

PC1. identify the final output product based on engineering drawing

PC2. identify the tools, measuring instruments and input materials required for the job

PC3. check the raw material, tools and equipment for any defects and that they are as per the required quality standards

PC4. follow the tooling instructions for fixtures, cutting tools, jigs, gauges etc., as specified in the Operating Manual/Work Instructions and collect all the required items from the store

PC5. set-up the conventional milling machine to perform various milling activities such as face milling, side milling, angle milling of parts, etc.

PC6. adjust the machine controls to ensure conformance with the specified tolerances

PC7. mount, install and align tools, attachments and fixtures on machine by using hand tools and precision measuring instruments

PC8. lift the work piece/metal stock manually or by hoist, position the same securely on the machine bed by using workholding devices and verify their positions with measuring instruments if required

PC9. select and install pre-set toolings in tool posts

Perform milling operations

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

PC10. set the machine parameters like cutting speed, depth of cut and feed rate and position cutting tool and work piece as per work instructions

PC11. move cutter or turning hand wheel manually for machining the work piece as per the required specifications

PC12. set angular cutting by indexing the milling head on milling machine as required

PC13. start the milling machine, produce the component and inspect the first-run piece for conformance to specifications by using precision gauges

PC14. run the machine for mass production of components, if the first run-piece meets the specified requirements

Perform post machining operations

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

PC15. check the component as per the control plan, work instructions for product quality

PC16. note down the observations of the basic inspection process and identify pieces which are as per the specified standards

PC17. separate the completed pieces into Ok pieces and defective pieces which can be repaired/reworked and pieces which are beyond repair and maintain records of each category

PC18. observe the machine operations for any malfunctions/defects in the component and immediately inform the supervisor/maintenance team for correction

PC19. replace worn out tools timely and safely with new tools and perform minor maintenance activities

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. Standard Operating Procedures (SOP) for operating the milling machine

KU2. the process flow of the various milling operations

KU3. SOP recommended by the manufacturer for using tools, jigs, fixtures, measuring instruments etc. used during the machining processes

KU4. the impact of various machining parameters on the final product

KU5. the use of various cutting tools for different machining operations

KU6. the use of tools such as chuck, collet, angle piece, clamping elements like studs, T-nut, T-bolt, fly nuts etc., vice, jig and fixture, milling cutters, pallet shuttles, taper sleeves and holders

KU7. how to load and unload machine parts safely

KU8. SOP recommended by the organisation for checking irregularities in the product/work piece

KU9. how to compute unspecified dimensions and machine settings

KU10. safety requirements for machine and tools during the machining work

KU11. the post machining processes like inspection, cleaning, maintenance etc.

KU12. the organisational standard practices for performing maintenance activities

KU13. the various inspection methods for inspecting the quality of machined product

Generic Skills (GS)

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

GS1. read and interpret drawings, charts and machine readings

GS2. communicate using terms, names, grades and other nomenclature pertaining to the automotive trade

GS3. communicate effectively at the workplace

GS4. attentively listen and comprehend the information given by the lead technician/team members

GS5. write observations and any work related information in English/regional language

GS6. recognise a workplace problem and take suitable action

GS7. analyse and apply the information gathered from observation, experience, reasoning or communication to act efficiently

GS8. plan and organize tools, machines and consumables for carrying out machining job

GS9. complete the assigned tasks with minimum supervision

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Prepare for Milling operations	**16**	**22**	**-**	**11**
PC1. identify the final output product based on engineering drawing	2	1	-	1
PC2. identify the tools, measuring instruments and input materials required for the job	2	3	-	2
PC3. check the raw material, tools and equipment for any defects and that they are as per the required quality standards	2	2	-	1
PC4. follow the tooling instructions for fixtures, cutting tools, jigs, gauges etc., as specified in the Operating Manual/Work Instructions and collect all the required items from the store	2	2	-	1
PC5. set-up the conventional milling machine to perform various milling activities such as face milling, side milling, angle milling of parts, etc.	2	3	-	2
PC6. adjust the machine controls to ensure conformance with the specified tolerances	1	3	-	1
PC7. mount, install and align tools, attachments and fixtures on machine by using hand tools and precision measuring instruments	2	3	-	1
PC8. lift the work piece/metal stock manually or by hoist, position the same securely on the machine bed by using workholding devices and verify their positions with measuring instruments if required	2	3	-	2
PC9. select and install pre-set toolings in tool posts	1	2	-	-
Perform milling operations	**6**	**15**	**-**	**3**
PC10. set the machine parameters like cutting speed, depth of cut and feed rate and position cutting tool and work piece as per work instructions	1	3	-	1
PC11. move cutter or turning hand wheel manually for machining the work piece as per the required specifications	1	3	-	1
PC12. set angular cutting by indexing the milling head on milling machine as required	1	1	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. start the milling machine, produce the component and inspect the first-run piece for conformance to specifications by using precision gauges	2	4	-	-
PC14. run the machine for mass production of components, if the first run-piece meets the specified requirements	1	4	-	1
Perform post machining operations	**8**	**13**	**-**	**6**
PC15. check the component as per the control plan, work instructions for product quality	2	3	-	-
PC16. note down the observations of the basic inspection process and identify pieces which are as per the specified standards	1	2	-	2
PC17. separate the completed pieces into Ok pieces and defective pieces which can be repaired/reworked and pieces which are beyond repair and maintain records of each category	2	3	-	-
PC18. observe the machine operations for any malfunctions/defects in the component and immediately inform the supervisor/maintenance team for correction	1	2	-	2
PC19. replace worn out tools timely and safely with new tools and perform minor maintenance activities	2	3	-	2
NOS Total	**30**	**50**	**-**	**20**

National Occupational Standards (NOS) Parameters

NOS Code	ASC/N3538
NOS Name	Perform milling operations on conventional lathe
Sector	Automotive
Sub-Sector	Manufacturing
Occupation	Machining Operation
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	18/11/2020
Next Review Date	25/02/2026
NSQC Clearance Date	NA

DGT/VSQ/N0102: Employability Skills (60 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
- Career Development & Goal Setting
- 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. identify employability skills required for jobs in various industries

PC2. identify and explore learning and employability portals

Constitutional values – Citizenship

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

PC3. recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc.

PC4. follow environmentally sustainable practices

Becoming a Professional in the 21st Century

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

PC5. recognize the significance of 21st Century Skills for employment

PC6. practice the 21st Century Skills such as Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life

Basic English Skills

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

PC7. use basic English for everyday conversation in different contexts, in person and over the telephone

PC8. read and understand routine information, notes, instructions, mails, letters etc. written in English

PC9. write short messages, notes, letters, e-mails etc. in English

Career Development & Goal Setting

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

PC10. understand the difference between job and career

PC11. prepare a career development plan with short- and long-term goals, based on aptitude

Communication Skills

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

PC12. follow verbal and non-verbal communication etiquette and active listening techniques in various settings

PC13. work collaboratively with others in a team

Diversity & Inclusion

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

PC14. communicate and behave appropriately with all genders and PwD

PC15. escalate any issues related to sexual harassment at workplace according to POSH Act

Financial and Legal Literacy

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

PC16. select financial institutions, products and services as per requirement

PC17. carry out offline and online financial transactions, safely and securely

PC18. identify common components of salary and compute income, expenses, taxes, investments etc

PC19. identify relevant rights and laws and use legal aids to fight against legal exploitation

Essential Digital Skills

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

PC20. operate digital devices and carry out basic internet operations securely and safely

PC21. use e- mail and social media platforms and virtual collaboration tools to work effectively

PC22. use basic features of word processor, spreadsheets, and presentations

Entrepreneurship

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

PC23. identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research

PC24. develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion

PC25. identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity

Customer Service

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

PC26. identify different types of customers

PC27. identify and respond to customer requests and needs in a professional manner.

PC28. follow appropriate hygiene and grooming standards

Getting ready for apprenticeship & Jobs

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

PC29. create a professional Curriculum vitae (Résumé)

PC30. search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively

PC31. apply to identified job openings using offline /online methods as per requirement

PC32. answer questions politely, with clarity and confidence, during recruitment and selection

PC33. identify apprenticeship opportunities and register for it as per guidelines and requirements

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. need for employability skills and different learning and employability related portals

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 English language for effective verbal (face to face and telephonic) and written communication in formal and informal set up

KU6. importance of career development and setting long- and short-term goals

KU7. about effective communication

KU8. POSH Act

KU9. Gender sensitivity and inclusivity

KU10. different types of financial institutes, products, and services

KU11. how to compute income and expenditure

KU12. importance of maintaining safety and security in offline and online financial transactions

KU13. different legal rights and laws

KU14. different types of digital devices and the procedure to operate them safely and securely

KU15. how to create and operate an e- mail account and use applications such as word processors, spreadsheets etc.

KU16. how to identify business opportunities

KU17. types and needs of customers

KU18. how to apply for a job and prepare for an interview

KU19. apprenticeship scheme and the process of registering on apprenticeship portal

Generic Skills (GS)

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

GS1. read and write different types of documents/instructions/correspondence

GS2. communicate effectively using appropriate language in formal and informal settings

GS3. behave politely and appropriately with all

GS4. how to work in a virtual mode

GS5. perform calculations efficiently
GS6. solve problems effectively
GS7. pay attention to details
GS8. manage time efficiently
GS9. maintain hygiene and sanitization to avoid infection

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Introduction to Employability Skills	**1**	**1**	**-**	**-**
PC1. identify employability skills required for jobs in various industries	-	-	-	-
PC2. identify and explore learning and employability portals	-	-	-	-
Constitutional values – Citizenship	**1**	**1**	**-**	**-**
PC3. recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc.	-	-	-	-
PC4. follow environmentally sustainable practices	-	-	-	-
Becoming a Professional in the 21st Century	**2**	**4**	**-**	**-**
PC5. recognize the significance of 21st Century Skills for employment	-	-	-	-
PC6. practice the 21st Century Skills such as Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life	-	-	-	-
Basic English Skills	**2**	**3**	**-**	**-**
PC7. use basic English for everyday conversation in different contexts, in person and over the telephone	-	-	-	-
PC8. read and understand routine information, notes, instructions, mails, letters etc. written in English	-	-	-	-
PC9. write short messages, notes, letters, e-mails etc. in English	-	-	-	-
Career Development & Goal Setting	**1**	**2**	**-**	**-**

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. understand the difference between job and career	-	-	-	-
PC11. prepare a career development plan with short- and long-term goals, based on aptitude	-	-	-	-
Communication Skills	**2**	**2**	**-**	**-**
PC12. follow verbal and non-verbal communication etiquette and active listening techniques in various settings	-	-	-	-
PC13. work collaboratively with others in a team	-	-	-	-
Diversity & Inclusion	**1**	**2**	**-**	**-**
PC14. communicate and behave appropriately with all genders and PwD	-	-	-	-
PC15. escalate any issues related to sexual harassment at workplace according to POSH Act	-	-	-	-
Financial and Legal Literacy	**2**	**3**	**-**	**-**
PC16. select financial institutions, products and services as per requirement	-	-	-	-
PC17. carry out offline and online financial transactions, safely and securely	-	-	-	-
PC18. identify common components of salary and compute income, expenses, taxes, investments etc	-	-	-	-
PC19. identify relevant rights and laws and use legal aids to fight against legal exploitation	-	-	-	-
Essential Digital Skills	**3**	**4**	**-**	**-**
PC20. operate digital devices and carry out basic internet operations securely and safely	-	-	-	-
PC21. use e- mail and social media platforms and virtual collaboration tools to work effectively	-	-	-	-
PC22. use basic features of word processor, spreadsheets, and presentations	-	-	-	-
Entrepreneurship	**2**	**3**	**-**	**-**

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC23. identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research	-	-	-	-
PC24. develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion	-	-	-	-
PC25. identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity	-	-	-	-
Customer Service	**1**	**2**	**-**	**-**
PC26. identify different types of customers	-	-	-	-
PC27. identify and respond to customer requests and needs in a professional manner.	-	-	-	-
PC28. follow appropriate hygiene and grooming standards	-	-	-	-
Getting ready for apprenticeship & Jobs	**2**	**3**	**-**	**-**
PC29. create a professional Curriculum vitae (Résumé)	-	-	-	-
PC30. search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively	-	-	-	-
PC31. apply to identified job openings using offline /online methods as per requirement	-	-	-	-
PC32. answer questions politely, with clarity and confidence, during recruitment and selection	-	-	-	-
PC33. identify apprenticeship opportunities and register for it as per guidelines and requirements	-	-	-	-
NOS Total	**20**	**30**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	DGT/VSQ/N0102
NOS Name	Employability Skills (60 Hours)
Sector	Cross Sectoral
Sub-Sector	Professional Skills
Occupation	Employability
NSQF Level	4
Credits	2
Version	1.0
Last Reviewed Date	31/01/2024
Next Review Date	31/01/2027
NSQC Clearance Date	31/01/2024

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.

2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.

3. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training centre (as per assessment criteria below).

4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training centre based on these criteria.

5. In case of successfully passing only certain number of NOSs, the trainee is eligible to take

subsequent assessment on the balance NOS's to pass the Qualification Pack.

6. 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
ASC/N9803.Organize work and resources (Manufacturing)	50	30	-	20	100	5
ASC/N9805.Interpret engineering drawing	50	30	-	20	100	10
ASC/N3536.Perform turning operations on conventional lathe	30	50	-	20	100	15
ASC/N3537.Perform drilling, reaming, tapping and boring operations on conventional lathe	30	50	-	20	100	20
ASC/N3539.Perform grinding operations on conventional lathe	30	50	-	20	100	20
ASC/N3538.Perform milling operations on conventional lathe	30	50	-	20	100	20
DGT/VSQ/N0102.Employability Skills (60 Hours)	20	30	-	-	50	10
Total	**240**	**290**	**-**	**120**	**650**	**100**

Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training
SOP	Standard Operating Procedure
CNC	Computerized Numerical Control
RPM	Revolutions Per Minute
MOT	Measurement Over Teeth
PCD	Pitch Circle Diameter

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.