



# Automotive Welding Machine Technician

QP Code: ASC/Q3103

Version: 2.0

NSQF Level: 4

Automotive Skills Development Council || 153, Gr Floor, Okhla Industrial Area, Phase - III, Leela Building  
New Delhi - 110020

## Contents

ASC/Q3103: Automotive Welding Machine Technician .....	3
<i>Brief Job Description</i> .....	3
Applicable National Occupational Standards (NOS) .....	3
<i>Compulsory NOS</i> .....	3
<i>Qualification Pack (QP) Parameters</i> .....	3
ASC/N9803: Organize work and resources (Manufacturing) .....	5
ASC/N9802: Interact effectively with colleagues, customers and others.....	11
ASC/N9805: Interpret engineering drawing .....	15
ASC/N3109: Perform welding and post welding operations .....	20
Assessment Guidelines and Weightage.....	26
<i>Assessment Guidelines</i> .....	26
<i>Assessment Weightage</i> .....	26
Acronyms .....	28
Glossary .....	29

## ASC/Q3103: Automotive Welding Machine Technician

### Brief Job Description

The individual is primarily involved in all robotic and manual welding operations performed in automotive manufacturing. They use various types of welding processes such as TIG, MIG, SMAW welding etc. The individual perform activities such as inspection of equipment condition, gauging, testing and inspection of welded work pieces.

### 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/N9802: Interact effectively with colleagues, customers and others](#)
3. [ASC/N9805: Interpret engineering drawing](#)
4. [ASC/N3109: Perform welding and post welding operations](#)

### Qualification Pack (QP) Parameters

<b>Sector</b>	Automotive
<b>Sub-Sector</b>	Manufacturing
<b>Occupation</b>	Metal Joining
<b>Country</b>	India
<b>NSQF Level</b>	4
<b>Aligned to NCO/ISCO/ISIC Code</b>	NCO-2015/7212.0302
<b>Minimum Educational Qualification &amp; Experience</b>	12th Class with 1-2 Years of experience in Welding OR ITI (Welder) OR Certificate-NSQF Level 3 (Automotive

	Welding Machine Operator (Manual and Robotics)) with 2-3 Years 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	20/01/2021
Next Review Date	20/01/2026
NSQC Approval Date	
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
<i>Maintain safe and secure working environment</i>	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
<i>Health and hygiene</i>	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	-	-
<i>Perform work as per quality standards</i>	5	3	-	2
PC13. ensure that work is accomplished as per the requirements within the specified timeline	2	2	-	1
PC14. ensure team goals are given preference over individual goals	3	1	-	1
<i>Effective waste management practices</i>	15	10	-	4

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
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
<i>Material/energy conservation practices</i>	<b>12</b>	<b>7</b>	-	<b>5</b>
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
<b>NOS Total</b>	<b>50</b>	<b>30</b>	-	<b>20</b>

## National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ASC/N9803
<b>NOS Name</b>	Organize work and resources (Manufacturing)
<b>Sector</b>	Automotive
<b>Sub-Sector</b>	Generic
<b>Occupation</b>	Generic
<b>NSQF Level</b>	3
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	20/01/2021
<b>Next Review Date</b>	20/01/2026
<b>NSQC Clearance Date</b>	

## ASC/N9802: Interact effectively with colleagues, customers and others

### Description

This NOS unit is about communicating with customers and colleagues/superiors, either in own work group or in other work groups within organisation.

### Scope

The scope covers the following :

- Communicate effectively with colleagues, customers and others
- Interact with supervisor or superior

### Elements and Performance Criteria

#### *Communicate effectively with colleagues, customers and others*

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

- PC1. maintain clear communication with colleagues, customers and others, wherever needed, through all means i.e. face-to-face, telephonic or written
- PC2. adjust communication styles to reflect gender and persons with disability (PWD) sensitivity
- PC3. work in a way that shows respect for colleagues and others
- PC4. follow the organisation's policies and procedures while working in a team
- PC5. respect personal space of colleagues and customers

#### *Interact with supervisor or superior*

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

- PC6. identify work requirements by receiving instructions from reporting supervisor
- PC7. escalate problems to supervisors that cannot be handled including repairs and maintenance of machine
- PC8. report the completed work
- PC9. rectify errors as per feedback

### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1. the importance of effective communication and establishing good working relationships with colleagues and supervisor
- KU2. different methods of communication as per the circumstances
- KU3. gender based concepts, issues and legislation

### Generic Skills (GS)

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

- GS1. read instructions/guidelines/procedures
- GS2. listen effectively and orally communicate information
- GS3. ask for clarification and advice from the concerned person
- GS4. maintain positive and effective relationships with colleagues and customers

- GS5. evaluate the possible solution(s) to the problem
- GS6. deliver consistent and reliable service to customers
- GS7. complete written work with attention to detail
- GS8. check that the work meets customer requirements

## Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Communicate effectively with colleagues, customers and others</i>	36	11	-	14
PC1. maintain clear communication with colleagues, customers and others, wherever needed, through all means i.e. face-to-face, telephonic or written	8	-	-	4
PC2. adjust communication styles to reflect gender and persons with disability (PwD) sensitivity	8	-	-	-
PC3. work in a way that shows respect for colleagues and others	7	4	-	3
PC4. follow the organisation's policies and procedures while working in a team	7	4	-	3
PC5. respect personal space of colleagues and customers	6	3	-	4
<i>Interact with supervisor or superior</i>	14	19	-	6
PC6. identify work requirements by receiving instructions from reporting supervisor	7	4	-	-
PC7. escalate problems to supervisors that cannot be handled including repairs and maintenance of machine	-	5	-	3
PC8. report the completed work	7	5	-	-
PC9. rectify errors as per feedback	-	5	-	3
<b>NOS Total</b>	<b>50</b>	<b>30</b>	<b>-</b>	<b>20</b>

## National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ASC/N9802
<b>NOS Name</b>	Interact effectively with colleagues, customers and others
<b>Sector</b>	Automotive
<b>Sub-Sector</b>	Generic
<b>Occupation</b>	Generic
<b>NSQF Level</b>	3
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	20/01/2021
<b>Next Review Date</b>	20/01/2026
<b>NSQC Clearance Date</b>	

# 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 Tolerancing (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
<i>Interpret information from various views, projection, 2D and 3D shapes</i>	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
<i>Identify drawing standards and symbols</i>	23	15	-	8
PC6. interpret Geometric Dimensioning and Tolerancing (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
<i>Modification and storage of drawing</i>	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
<b>NOS Total</b>	<b>50</b>	<b>30</b>	<b>-</b>	<b>20</b>

## National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ASC/N9805
<b>NOS Name</b>	Interpret engineering drawing
<b>Sector</b>	Automotive
<b>Sub-Sector</b>	Generic
<b>Occupation</b>	Generic
<b>NSQF Level</b>	4
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	20/01/2021
<b>Next Review Date</b>	20/01/2026
<b>NSQC Clearance Date</b>	

# ASC/N3109: Perform welding and post welding operations

## Description

This NOS unit is about performing all welding and post-welding operations as per the given work order and the standards specified by the organization.

## Scope

The scope covers the following :

- Prepare for welding activities
- Perform welding operations
- Perform post-welding operations

## Elements and Performance Criteria

### *Prepare for welding activities*

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

- PC1. identify the final output product based on the engineering drawing, Welding Procedure Specification (WPS) and job orders
- PC2. identify the tools, measuring instruments and input materials required for the job
- PC3. select the appropriate welding method on the basis of drawing, WPS and job orders information
- PC4. select and arrange the right material, equipment, fixtures and accessories as per the SOP and job requirements
- PC5. check the input material, tools and equipment for any defects and that they are as per the required quality standards
- PC6. fill CLRI (Clean, Lubricate, Retighten & Inspection) check sheet and report to the supervisor about any abnormalities identified and action taken to resolve them
- PC7. set the welding machine and its parameters as per the selected welding method
- PC8. install the work pieces and fixture on the apparatus and align them with the electrodes as per the job requirements
- PC9. ensure that electrodes distance, contact area, pressure, application etc. are maintained as specified in Work Instructions (WI)

### *Perform welding operations*

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

- PC10. start the welding machine for welding operations
- PC11. perform welding process (SMAW/MIG/MAG/TIG/Robotic welding) as per SOP
- PC12. ensure the welding process parameters (air pressure, electrode force, electrode distance, gas flow, etc.) are within standards by reading the various gauges and correct them if not within standards
- PC13. support in comparing the dimensions of the final welded piece as prescribed in the work order and engineering drawing
- PC14. check and repair the remaining material from the welded piece by using chipping hammers, grinders etc., as prescribed in SOP
- PC15. check the hammered work piece to get the desired shape, if there are any welding bulges/distortions

### *Perform post-welding operations*

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

- PC16. check the work pieces as per the work instructions for product quality
- PC17. conduct destructive and non-destructive tests on the work pieces
- PC18. check the issues identified in defective or to be repaired/reworked welded pieces and maintain a record of the same
- PC19. check if Automotive Welding Machine Operator (Manual and Robotics) is tagged and stored the right quality pieces by following organisational policies and procedures
- PC20. check the machine operations for any malfunctions/defects in the component
- PC21. remove chips from different machine areas and dispose scrap or waste material in accordance with the company policies and environmental regulations

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1. the basic principle of welding process
- KU2. various types of welding such as SMAW, MIG, MAG, TIG, Resistance Welding (Seam Welding, Projection Welding), Robotic Welding etc. and their process flow
- KU3. various types of welding joints
- KU4. how to read and interpret welding drawings and symbols
- KU5. SOP recommended by the manufacturer for using tools, measuring instruments, accessories etc. during the welding processes
- KU6. ISO colour codes for welding apparatus such as gas cylinder, hoses, electric cables, etc.
- KU7. different cleaning methods for electrodes, metal surfaces etc.
- KU8. impact of various welding parameters like voltage, current, gas flow rate, speed, pressure, torch angle, cycle time, electrode distance etc. on the quality and quantity of welding
- KU9. SOP recommended by the organisation for operating welding machine and its accessories
- KU10. SOP recommended by the organisation for checking irregularities in the product/work piece
- KU11. safety requirements during the welding work
- KU12. the post welding processes like inspection, cleaning, maintenance etc.
- KU13. various types of weld defects such as spatter, blow-hole, burn through, etc. and their remedies
- KU14. methods of storage and tagging of final product
- KU15. about the various testing techniques like visual, destructive and non-destructive

## Generic Skills (GS)

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

- GS1. read and interpret drawings, work instructions, equipment manuals and process documents
- GS2. communicate the welding process requirements to the lead technician and co-workers
- GS3. communicate issues to the supervisor that occur during welding process
- GS4. attentively listen and comprehend the information given by the lead technician/team members
- GS5. write 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 welding job
- GS9.** complete the assigned tasks with minimum supervision
- GS10.** report to the supervisor or deal with a colleague individually, depending on the type of concern

## Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare for welding activities</i>	<b>10</b>	<b>16</b>	-	<b>7</b>
PC1. identify the final output product based on the engineering drawing, Welding Procedure Specification (WPS) and job orders	1	2	-	1
PC2. identify the tools, measuring instruments and input materials required for the job	2	1	-	2
PC3. select the appropriate welding method on the basis of drawing, WPS and job orders information	1	2	-	-
PC4. select and arrange the right material, equipment, fixtures and accessories as per the SOP and job requirements	1	1	-	-
PC5. check the input material, tools and equipment for any defects and that they are as per the required quality standards	1	2	-	1
PC6. fill CLRI (Clean, Lubricate, Retighten & Inspection) check sheet and report to the supervisor about any abnormalities identified and action taken to resolve them	1	2	-	-
PC7. set the welding machine and its parameters as per the selected welding method	1	2	-	2
PC8. install the work pieces and fixture on the apparatus and align them with the electrodes as per the job requirements	1	3	-	1
PC9. ensure that electrodes distance, contact area, pressure, application etc. are maintained as specified in Work Instructions (WI)	1	1	-	-
<i>Perform welding operations</i>	<b>11</b>	<b>18</b>	-	<b>6</b>
PC10. start the welding machine for welding operations	1	1	-	-
PC11. perform welding process (SMAW/MIG/MAG/TIG/Robotic welding) as per SOP	4	7	-	3
PC12. ensure the welding process parameters (air pressure, electrode force, electrode distance, gas flow, etc.) are within standards by reading the various gauges and correct them if not within standards	2	3	-	2

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. support in comparing the dimensions of the final welded piece as prescribed in the work order and engineering drawing	2	3	-	1
PC14. check and repair the remaining material from the welded piece by using chipping hammers, grinders etc., as prescribed in SOP	1	2	-	-
PC15. check the hammered work piece to get the desired shape, if there are any welding bulges/distortions	1	2	-	-
<i>Perform post-welding operations</i>	<b>9</b>	<b>16</b>	-	<b>7</b>
PC16. check the work pieces as per the work instructions for product quality	2	2	-	1
PC17. conduct destructive and non-destructive tests on the work pieces	2	4	-	2
PC18. check the issues identified in defective or to be repaired/reworked welded pieces and maintain a record of the same	1	3	-	1
PC19. check if Automotive Welding Machine Operator (Manual and Robotics) is tagged and stored the right quality pieces by following organisational policies and procedures	1	2	-	-
PC20. check the machine operations for any malfunctions/defects in the component	2	3	-	2
PC21. remove chips from different machine areas and dispose scrap or waste material in accordance with the company policies and environmental regulations	1	2	-	1
<b>NOS Total</b>	<b>30</b>	<b>50</b>	-	<b>20</b>

## National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ASC/N3109
<b>NOS Name</b>	Perform welding and post welding operations
<b>Sector</b>	Automotive
<b>Sub-Sector</b>	Manufacturing
<b>Occupation</b>	Metal Joining
<b>NSQF Level</b>	4
<b>Credits</b>	TBD
<b>Version</b>	2.0
<b>Last Reviewed Date</b>	20/01/2021
<b>Next Review Date</b>	20/01/2026
<b>NSQC Clearance Date</b>	

## 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	10
ASC/N9802.Interact effectively with colleagues, customers and others	50	30	-	20	100	5
ASC/N9805.Interpret engineering drawing	50	30	-	20	100	10
ASC/N3109.Perform welding and post welding operations	30	50	-	20	100	75

<b>National Occupational Standards</b>	<b>Theory Marks</b>	<b>Practical Marks</b>	<b>Project Marks</b>	<b>Viva Marks</b>	<b>Total Marks</b>	<b>Weightage</b>
<b>Total</b>	<b>180</b>	<b>140</b>	<b>-</b>	<b>80</b>	<b>400</b>	<b>100</b>

## Acronyms

<b>NOS</b>	National Occupational Standard(s)
<b>NSQF</b>	National Skills Qualifications Framework
<b>QP</b>	Qualifications Pack
<b>TVET</b>	Technical and Vocational Education and Training
<b>PPE</b>	Personal Protective Equipment
<b>PwD</b>	Person with Disability
<b>SOP</b>	Standard Operating Procedure
<b>GD&amp;T</b>	Geometric Dimensioning & Tolerancing
<b>CAD</b>	Computer-Aided Drafting
<b>CAM</b>	Computer-Aided Manufacturing
<b>WPS</b>	Welding Procedure Specification
<b>CLRI</b>	Clean, Lubricate, Retighten & Inspection
<b>SMAW</b>	Shield Metal Arc Welding
<b>MIG</b>	Metal Inert Gas
<b>MAG</b>	Metal Active Gas
<b>TIG</b>	Tungsten Arc Welding
<b>ISO</b>	International Organization for Standardization

## Glossary

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

<b>Technical Knowledge</b>	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
<b>Core Skills/Generic Skills (GS)</b>	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
<b>Electives</b>	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
<b>Options</b>	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.