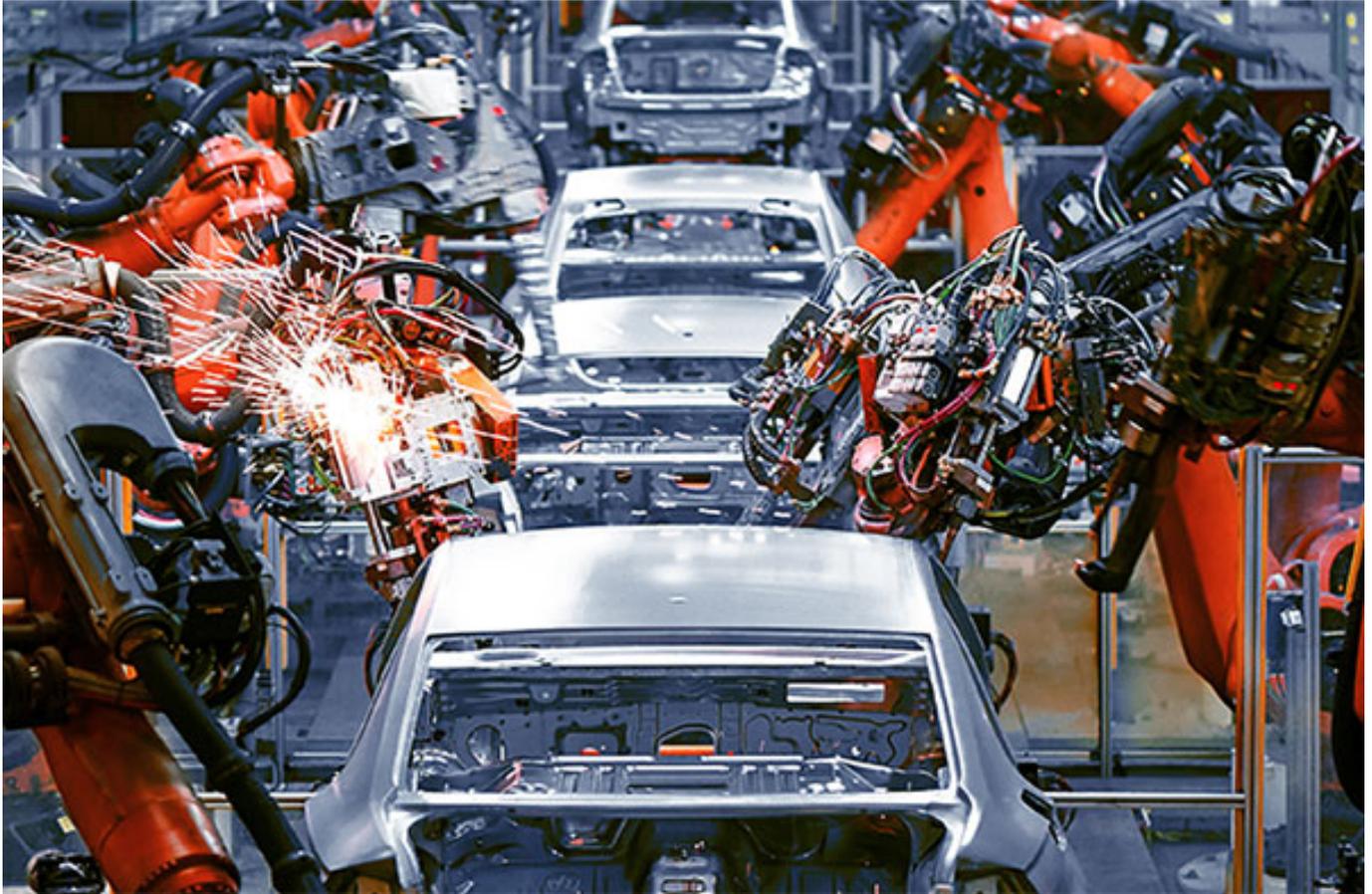


Qualification Pack



Automotive Welding Machine Operator (Manual and Robotics)

QP Code: ASC/Q3102

Version: 2.0

NSQF Level: 3

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

Qualification Pack

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Qualification Pack

ASC/Q3102: Automotive Welding Machine Operator (Manual and Robotics)

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. They support the welding technician in activities such as inspection of equipments condition, welding, 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/N3105: Support the technician in welding process](#)

Qualification Pack (QP) Parameters

| | |
|--------------------------------------|--------------------|
| Sector | Automotive |
| Sub-Sector | Manufacturing |
| Occupation | Metal Joining |
| Country | India |
| NSQF Level | 3 |
| Aligned to NCO/ISCO/ISIC Code | NCO-2015/7212.0303 |

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| | |
|---|--|
| Minimum Educational Qualification & Experience | 10th Class OR Certificate-NSQF (Automotive Welding Machine Assistant Level 2) with 1-2 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 | 23/09/2020 |
| Next Review Date | 20/11/2025 |
| Deactivation Date | 20/11/2025 |
| NSQC Approval Date | 20/11/2020 |
| Version | 2.0 |
| Reference code on NQR | 2020/AUT/ASDC/03975 |
| NQR Version | 1.0 |

Qualification Pack

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

Qualification Pack

- 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

Qualification Pack

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

Qualification Pack

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 |

Qualification Pack

| 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 |
| <i>Effective waste management practices</i> | 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 |
| <i>Material/energy conservation practices</i> | 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 |

Qualification Pack

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 | NA |
| Next Review Date | 24/12/2025 |
| NSQC Clearance Date | 25/02/2021 |

Qualification Pack

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:

Qualification Pack

- 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

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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 |
| NOS Total | 50 | 30 | - | 20 |

Qualification Pack

National Occupational Standards (NOS) Parameters

| | |
|----------------------------|--|
| NOS Code | ASC/N9802 |
| NOS Name | Interact effectively with colleagues, customers and others |
| Sector | Automotive |
| Sub-Sector | Generic |
| Occupation | Generic |
| NSQF Level | 3 |
| Credits | TBD |
| Version | 1.0 |
| Last Reviewed Date | NA |
| Next Review Date | 22/09/2025 |
| NSQC Clearance Date | 25/02/2021 |

Qualification Pack

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

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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

Qualification Pack

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 |

Qualification Pack

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|--------------|-----------------|---------------|------------|
| PC10. observe any modification, changes required in the drawing and communicate the same to the concerned team in the organization | 3 | 2 | - | 1 |
| PC11. store the drawings in an easily accessible place, avoiding damage from moisture, chemicals and fire | 3 | 2 | - | 1 |
| NOS Total | 50 | 30 | - | 20 |

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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 | NA |
| Next Review Date | 24/12/2025 |
| NSQC Clearance Date | 25/02/2021 |

Qualification Pack

ASC/N3105: Support the technician in welding process

Description

This NOS is about supporting the automotive welding technician in all welding and post-welding activities as per the given work order and the standards specified by the organization.

Scope

The scope covers the following :

- Identify the work requirements
- Preparing for welding activities
- Support in welding operations
- Support in post-welding operations

Elements and Performance Criteria

Identify the work requirements

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

- PC1.** identify the input and output product based on engineering drawing and job orders
- PC2.** identify the tools, measuring instruments and input materials required for the job
- PC3.** select and arrange the right material, equipment, fixtures and accessories as per the SOP and job requirements

Preparing for welding activities

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

- PC4.** check the tools and equipment for any defects before use
- PC5.** support the automotive welding technician in setting of the machine and its parameters
- PC6.** install the work pieces on the apparatus and align them with the electrodes as per the job requirements
- PC7.** ensure that electrodes distance, contact area, pressure, application etc. are maintained as specified in Work Instructions (WI)

Support in welding operations

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

- PC8.** start the welding machine for welding operations
- PC9.** support the welding technician in performing welding process (SMAW, MIG, MAG, TIG, Robotic welding, etc) as per SOP
- PC10.** provide appropriate consumables and accessories to technician during welding process
- PC11.** monitor the welding process parameters (air pressure, electrode force, electrode distance, gas flow, etc.) by reading the various gauges and correct them if not within standards
- PC12.** measure the final welded piece and compare with the dimensions as prescribed in the work order and engineering drawing
- PC13.** remove extra material by using chipping hammers, grinders etc., from the welded piece
- PC14.** hammer the work piece to get the desired shape, if there are any welding bulges/distortions

Qualification Pack

Support in post-welding operations

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

- PC15.** support in checking the work pieces as per the work instructions for product quality
- PC16.** assist in conducting destructive and non-destructive tests
- PC17.** separate the defective pieces which can be repaired/reworked and pieces which are beyond repair and maintain records of each category
- PC18.** tag and store the right quality pieces by following organisational policies and procedures
- PC19.** check the machine operations for any malfunctions/defects in the component and immediately inform the supervisor/maintenance team for correction
- PC20.** 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 technician and co-workers
- GS3.** communicate issues to the supervisor that occur during welding process

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- GS4.** write any work related information in English/regional language
- GS5.** recognise a workplace problem and take suitable action
- GS6.** analyse and apply the information gathered from observation, experience, reasoning or communication to act efficiently
- GS7.** plan and organise work according to the principles of 5S
- GS8.** complete the assigned tasks as per schedule

Qualification Pack

Assessment Criteria

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|--|--------------|-----------------|---------------|------------|
| <i>Identify the work requirements</i> | 4 | 5 | - | 3 |
| PC1. identify the input and output product based on engineering drawing and job orders | 1 | 2 | - | 1 |
| PC2. identify the tools, measuring instruments and input materials required for the job | 2 | 1 | - | 2 |
| PC3. select and arrange the right material, equipment, fixtures and accessories as per the SOP and job requirements | 1 | 2 | - | - |
| <i>Preparing for welding activities</i> | 4 | 8 | - | 4 |
| PC4. check the tools and equipment for any defects before use | 1 | 2 | - | 1 |
| PC5. support the automotive welding technician in setting of the machine and its parameters | 1 | 2 | - | 2 |
| PC6. install the work pieces on the apparatus and align them with the electrodes as per the job requirements | 1 | 3 | - | 1 |
| PC7. ensure that electrodes distance, contact area, pressure, application etc. are maintained as specified in Work Instructions (WI) | 1 | 1 | - | - |
| <i>Support in welding operations</i> | 12 | 19 | - | 6 |
| PC8. start the welding machine for welding operations | 1 | 1 | - | - |
| PC9. support the welding technician in performing welding process (SMAW, MIG, MAG, TIG, Robotic welding, etc) as per SOP | 4 | 7 | - | 3 |
| PC10. provide appropriate consumables and accessories to technician during welding process | 1 | 2 | - | - |
| PC11. monitor the welding process parameters (air pressure, electrode force, electrode distance, gas flow, etc.) by reading the various gauges and correct them if not within standards | 2 | 2 | - | 2 |

Qualification Pack

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|--|--------------|-----------------|---------------|------------|
| PC12. measure the final welded piece and compare with the dimensions as prescribed in the work order and engineering drawing | 2 | 3 | - | 1 |
| PC13. remove extra material by using chipping hammers, grinders etc., from the welded piece | 1 | 2 | - | - |
| PC14. hammer the work piece to get the desired shape, if there are any welding bulges/distortions | 1 | 2 | - | - |
| <i>Support in post-welding operations</i> | 10 | 18 | - | 7 |
| PC15. support in checking the work pieces as per the work instructions for product quality | 2 | 2 | - | 1 |
| PC16. assist in conducting destructive and non-destructive tests | 2 | 4 | - | 2 |
| PC17. separate the defective pieces which can be repaired/reworked and pieces which are beyond repair and maintain records of each category | 1 | 3 | - | 1 |
| PC18. tag and store the right quality pieces by following organisational policies and procedures | 1 | 2 | - | - |
| PC19. check the machine operations for any malfunctions/defects in the component and immediately inform the supervisor/maintenance team for correction | 2 | 3 | - | 2 |
| PC20. remove chips from different machine areas and dispose scrap or waste material in accordance with the company policies and environmental regulations | 2 | 4 | - | 1 |
| NOS Total | 30 | 50 | - | 20 |

Qualification Pack

National Occupational Standards (NOS) Parameters

| | |
|----------------------------|---|
| NOS Code | ASC/N3105 |
| NOS Name | Support the technician in welding process |
| Sector | Automotive |
| Sub-Sector | Manufacturing |
| Occupation | Metal Joining |
| NSQF Level | 3 |
| Credits | TBD |
| Version | 2.0 |
| Last Reviewed Date | NA |
| Next Review Date | 20/11/2025 |
| NSQC Clearance Date | 25/02/2021 |

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 : 65

Qualification Pack

(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/N3105.Support the technician in welding process | 30 | 50 | - | 20 | 100 | 75 |
| Total | 180 | 140 | - | 80 | 400 | 100 |

Qualification Pack

Acronyms

| | |
|-----------------|---|
| NOS | National Occupational Standard(s) |
| NSQF | National Skills Qualifications Framework |
| QP | Qualifications Pack |
| TVET | Technical and Vocational Education and Training |
| PPE | Personal Protective Equipment |
| PwD | Person with Disability |
| SOP | Standard Operating Practices |
| PwD | Persons with Disability |
| SOP | Standard Operating Procedure |
| GD&T | Geometric Dimensioning & Tolerancing |
| CAD | Computer-Aided Drafting |
| CAM | Computer-Aided Manufacturing |
| SOP | Standard Operating Procedure |
| ISO | International Organization for Standardization |

Qualification Pack

Glossary

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| 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. |

Qualification Pack

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| 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. |