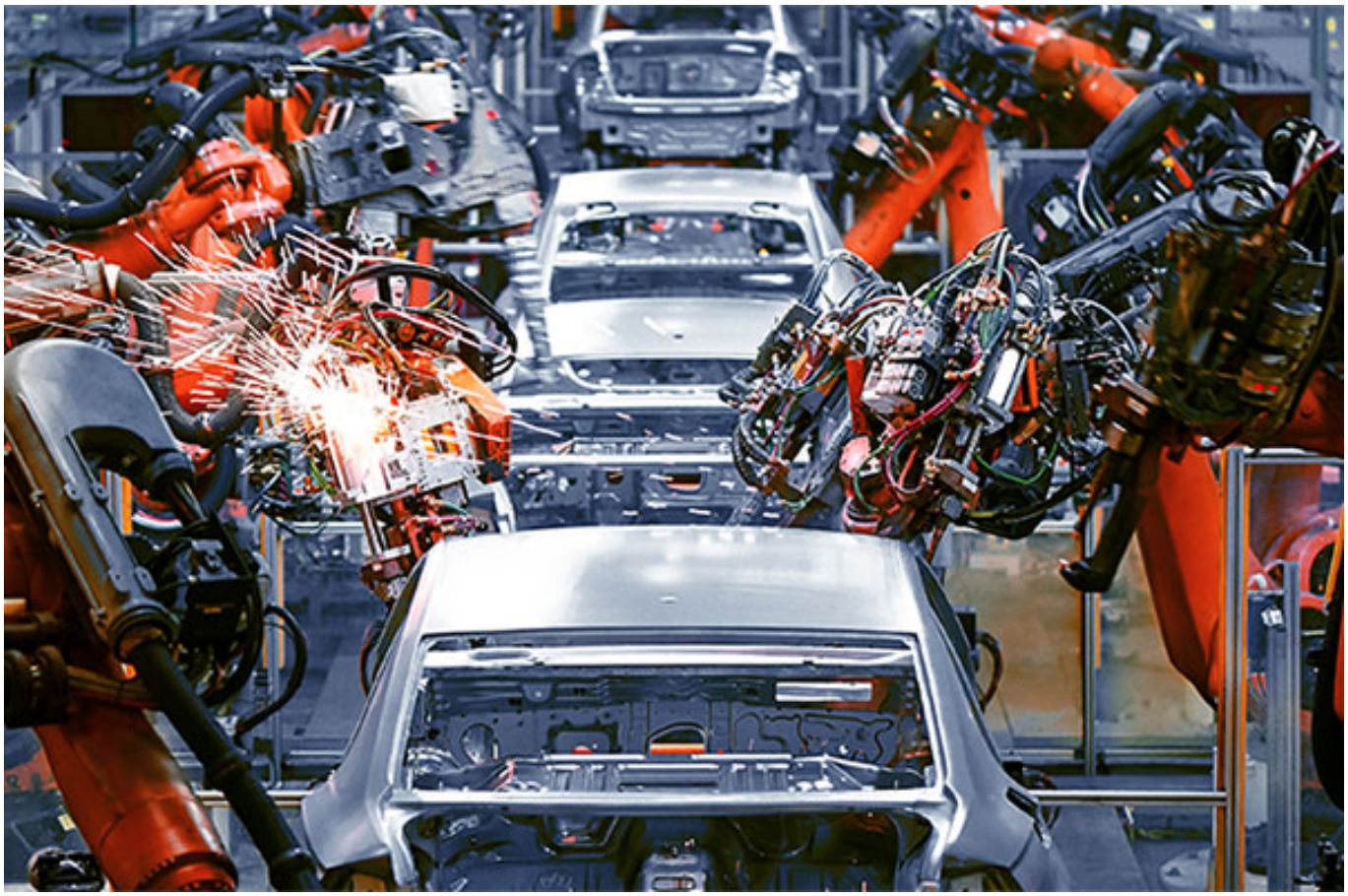
Qualification Pack



Automotive Welding Machine Operator (Manual and Robotics)

QP Code: ASC/Q3102

Version: 5.0

NSQF Level: 3

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Contents

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. DGT/VSQ/N0101: Employability Skills (30 Hours)
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
Credits	12
Aligned to NCO/ISCO/ISIC Code	NCO-2015/8212.1901

Qualification Pack

Minimum Educational Qualification & Experience	5th Class with 4 Years of experience of relevant experience OR 8th Class with 1 Year of experience of relevant experience OR 9th Class OR Certificate-NSQF (Level 2 (Automotive Welding Assistant) with 2 Years of experience 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	NA
Next Review Date	17/11/2025
NSQC Approval Date	17/11/2022
Version	5.0
Reference code on NQR	2022/AUT/ASDC/06562
NQR Version	5

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	2
Version	2.0
Last Reviewed Date	NA
Next Review Date	17/11/2025
NSQC Clearance Date	17/11/2022

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

Description

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

Scope

The scope covers the following :

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

Elements and Performance Criteria

Introduction to Employability Skills

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

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

Constitutional values – Citizenship

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

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

Becoming a Professional in the 21st Century

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

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

Basic English Skills

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

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

Communication Skills

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

PC5. follow good manners while communicating with others

PC6. work with others in a team

Diversity & Inclusion

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

PC7. communicate and behave appropriately with all genders and PwD

PC8. report any issues related to sexual harassment

Financial and Legal Literacy

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

PC9. use various financial products and services safely and securely

PC10. calculate income, expenses, savings etc.

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

Essential Digital Skills

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

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

PC13. use internet and social media platforms securely and safely

Entrepreneurship

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

PC14. identify and assess opportunities for potential business

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

Customer Service

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

PC16. identify different types of customers

PC17. identify customer needs and address them appropriately

PC18. follow appropriate hygiene and grooming standards

Getting ready for apprenticeship & Jobs

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

PC19. create a basic biodata

PC20. search for suitable jobs and apply

PC21. identify and register apprenticeship opportunities as per requirement

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. need for employability skills

KU2. various constitutional and personal values

KU3. different environmentally sustainable practices and their importance

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

KU5. how to use basic spoken English language

KU6. Do and dont of effective communication

KU7. inclusivity and its importance

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

KU9. different types of financial products and services

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

Generic Skills (GS)

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

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

Assessment Criteria

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

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

National Occupational Standards (NOS) Parameters

NOS Code	DGT/VSQ/N0101
NOS Name	Employability Skills (30 Hours)
Sector	Cross Sectoral
Sub-Sector	Professional Skills
Occupation	Employability
NSQF Level	2
Credits	1
Version	1.0
Last Reviewed Date	29/09/2023
Next Review Date	29/09/2026
NSQC Clearance Date	29/09/2023

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**

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**

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	1
Version	2.0
Last Reviewed Date	31/08/2021
Next Review Date	31/08/2024
NSQC Clearance Date	31/08/2021

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

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

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

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Identify the work requirements	**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	-	-
Preparing for welding activities	**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	-	-
Support in welding operations	**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

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	-	-
Support in post-welding operations	**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**

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	8
Version	3.0
Last Reviewed Date	NA
Next Review Date	17/11/2025
NSQC Clearance Date	17/11/2022

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

(**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	0	20	100	10
DGT/VSQ/N0101.Employability Skills (30 Hours)	20	30	0	0	50	5
ASC/N9805.Interpret engineering drawing	50	30	0	20	100	10
ASC/N3105.Support the technician in welding process	30	50	0	20	100	75
Total	**150**	**140**	**0**	**0**	**350**	**100**

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
PPE	Personal Protective Equipment
PwD	Person with Disability
SOP	Standard Operating Practices
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

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.