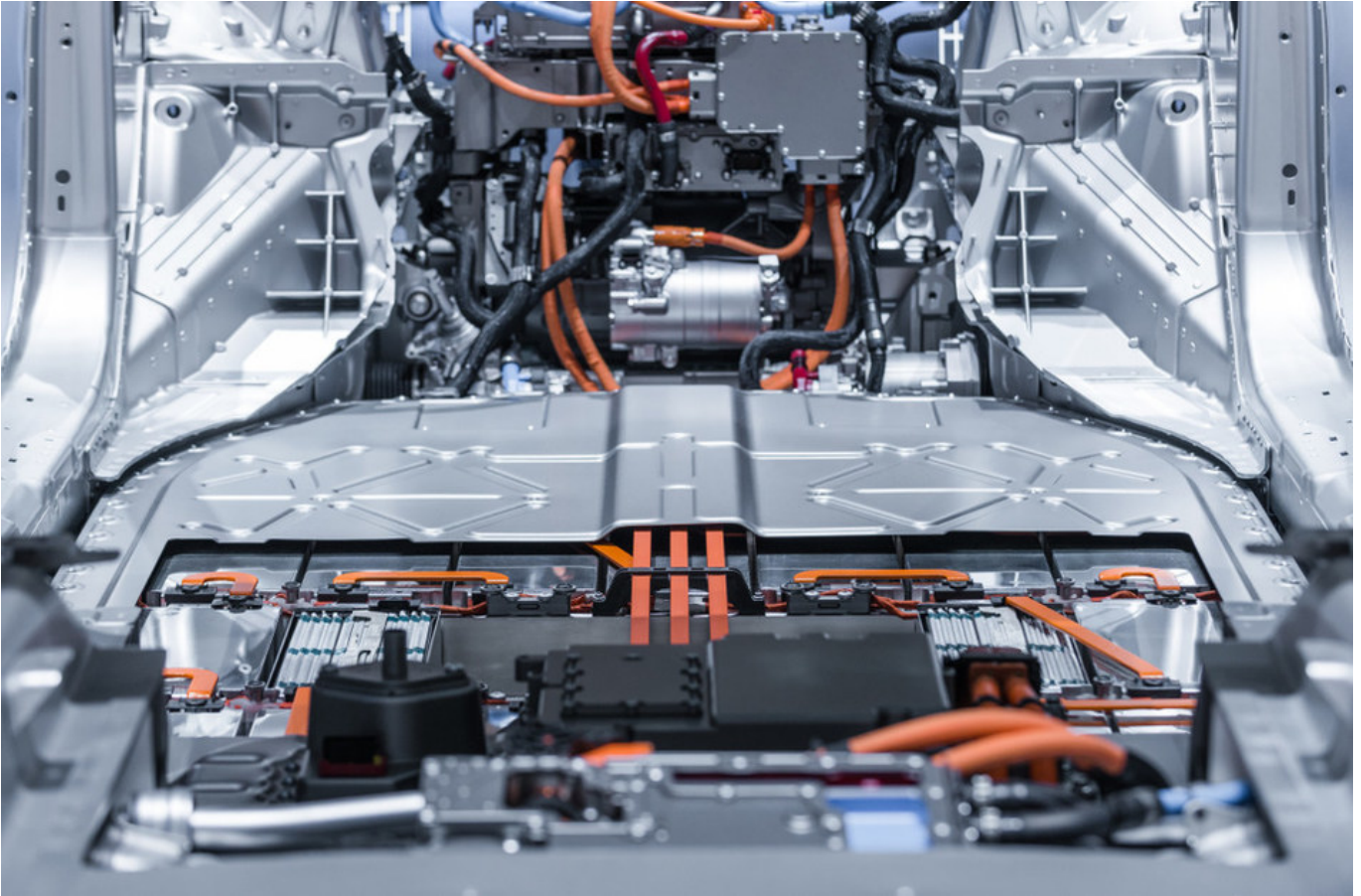


Qualification Pack



Electric Vehicle Assembly Operator

QP Code: ASC/Q3606

Version: 3.0

NSQF Level: 2.5

Automotive Skills Development Council || 153, GF, Okhla Industrial Area, Phase 3
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Qualification Pack

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ASC/Q3606: Electric Vehicle Assembly Operator

Brief Job Description

The individual supports the electric vehicle assembly technician and performs assembly of electric vehicle and its components.

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/N3618: Support the technician in electric vehicle assembly operations](#)

Qualification Pack (QP) Parameters

Sector	Automotive
Sub-Sector	Manufacturing
Occupation	Assembly Operation
Country	India
NSQF Level	2.5
Credits	10
Aligned to NCO/ISCO/ISIC Code	NCO-2015/8211.1201

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Minimum Educational Qualification & Experience	5th grade pass with 4 Years of experience of relevant experience OR 8th grade pass and pursuing continuous schooling OR 9th grade pass OR Certificate-NSQF (Automotive Assembly Assistant Level 2) with 1 Year 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	24/06/2026
NSQC Approval Date	24/06/2021
Version	3.0
Reference code on NQR	2021/AUT/ASDC/04298
NQR Version	3

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

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- 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

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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

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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

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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	1.5
Version	3.0
Last Reviewed Date	NA
Next Review Date	25/11/2024
NSQC Clearance Date	25/11/2021

Qualification Pack

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

Qualification Pack

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

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- 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

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Introduction to Employability Skills</i>	1	1	-	-
PC1. understand the significance of employability skills in meeting the job requirements	-	-	-	-
<i>Constitutional values - Citizenship</i>	1	1	-	-
PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices	-	-	-	-
<i>Becoming a Professional in the 21st Century</i>	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.	-	-	-	-
<i>Basic English Skills</i>	2	3	-	-
PC4. speak with others using some basic English phrases or sentences	-	-	-	-
<i>Communication Skills</i>	1	1	-	-
PC5. follow good manners while communicating with others	-	-	-	-
PC6. work with others in a team	-	-	-	-
<i>Diversity & Inclusion</i>	1	1	-	-
PC7. communicate and behave appropriately with all genders and PwD	-	-	-	-
PC8. report any issues related to sexual harassment	-	-	-	-
<i>Financial and Legal Literacy</i>	3	4	-	-
PC9. use various financial products and services safely and securely	-	-	-	-

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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	-	-	-	-
<i>Essential Digital Skills</i>	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	-	-	-	-
<i>Entrepreneurship</i>	3	5	-	-
PC14. identify and assess opportunities for potential business	-	-	-	-
PC15. identify sources for arranging money and associated financial and legal challenges	-	-	-	-
<i>Customer Service</i>	2	2	-	-
PC16. identify different types of customers	-	-	-	-
PC17. identify customer needs and address them appropriately	-	-	-	-
PC18. follow appropriate hygiene and grooming standards	-	-	-	-
<i>Getting ready for apprenticeship & Jobs</i>	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	-	-

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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	NA
Next Review Date	24/06/2026
NSQC Clearance Date	24/06/2021

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

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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

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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	1
Version	2.0
Last Reviewed Date	NA
Next Review Date	25/11/2024
NSQC Clearance Date	25/11/2021

Qualification Pack

ASC/N3618: Support the technician in electric vehicle assembly operations

Description

This NOS is about supporting the electric vehicle assembly technician and performing all assembly and post-assembly activities as per the given work order and the standards specified by the organization.

Scope

The scope covers the following :

- Prepare for assembly activities
- Support in assembly operations
- Support in post-assembly operations

Elements and Performance Criteria

Prepare for assembly activities

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

- PC1.** identify the work to be done by interpreting the assembly drawing/work instructions/SOPs
- PC2.** identify and arrange the tools, measuring instruments, equipment, auto components/parts and sub-assemblies as per the SOP and job requirements
- PC3.** select the appropriate assembling method and required tools and equipments in coordination with Electric Vehicle assembly technician
- PC4.** check the assembling tools, accessories, measuring instruments and equipment for any defects and clean dust and impurities from them before use
- PC5.** check the terminals of battery and clean them by oxidants
- PC6.** support in filling CLRI (clean, lubricate, retighten & inspection) check sheet and report to the supervisor about any abnormalities identified and action taken to resolve them
- PC7.** lift the auto component manually or by hoist and place the same securely on the designated slot/space as indicated in the drawing/work instructions

Support in assembly operations

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

- PC8.** follow safety practices during assembly process as per organisational SOP
- PC9.** support in setting of the equipment as per the selected assembly method
- PC10.** support in selecting the right programme in case of robotic assembly method as defined in the SOP
- PC11.** assist in assembly operations and assemble the safety parts i.e. bearings, shafts etc., battery systems, motors, electrical parts such as electric wire harness, Electronic Control Unit (ECU), automatic lock system, fuel injection system and other similar parts
- PC12.** assist in installation of the Oil and Lube systems by placing and fitting the funnel, filters, hose pipes, glands, sockets, suction guns and regulator valves as prescribed in the Work Instructions/ SOPs/Control Plans

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- PC13.** support in adjusting, aligning and setting (gap and flushness) the parts, assemblies and aggregates by following Product Quality Standard (PQS)
- PC14.** carry out sealing of the required areas to prevent any leakage of water/air etc. during the usage of the component
- PC15.** support in numbering of the wires connected to batteries during the assembly process

Support in post-assembly operations

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

- PC16.** carry out labeling on the auto components like High voltage sticker indication etc. specifying the information related to assembly process and quality standards followed
- PC17.** apply appropriate lubricant on the component as per manufacturer's specifications
- PC18.** check and confirm that battery charge, battery water, brake oil, gear oil, engine oil etc. are filled
- PC19.** support the assembly technician in inspecting the final assembly for quality and defects such as loose electrical connections, battery leakage, improper use and placement of electronic components i.e. battery, motor, ECU, sensors & actuators and body surface for paint, dents, grooves, cracks, rough edges, improper part clearances etc.
- PC20.** check the current in battery by using multimeter
- PC21.** store the tools, equipment and fixtures by following organisational policies and procedures after completion of work
- PC22.** dispose scrap or waste material into the disposal area in accordance with the company's policies and environmental regulations

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** relevant standards and procedures followed in the company
- KU2.** different components/aggregates as well as auto component manufacturer's specifications for the same
- KU3.** basic technology used in and functioning of various systems and components of the vehicle such as batteries, body management system, telematics, brake system, air-conditioning systems, active & passive safety system, media and other systems (including electrical machines and devices used in electric vehicles such as: generator, DC/AC and DC/DC converters, AC motor, DC motor, charging systems etc.)
- KU4.** interconnection of systems with each other and effect of one system on other system
- KU5.** fundamental terms, laws and principles of electricity used in EV such as: principles of storing electrical voltage, ohms law, voltage, current (AC/DC/HV), resistance, power, capacitance, electrostatics, magnetic, inductance, discrete electronic components, radio frequency, automotive communication protocols such as CAN, LIN, etc.
- KU6.** symbols, units and terms used in wiring diagrams associated with electrical/electric systems/components of the vehicle
- KU7.** legal regulations that need to be taken into account for handling electric vehicles in the workshop
- KU8.** various assembly operations and methods
- KU9.** the process flow of the assembly operations

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- KU10.** the correct method of the assembly operation such as angle for holding the soldering gun/pneumatic tools/pulse tools/dc nut-runner/riveting guns/battery tools, direction of application of torque, ergonomics of hand/ body to complete the assembly operation keeping in mind safe working procedures
- KU11.** SOP recommended by the manufacturer for using tools, measuring instruments, accessories and equipment required during the assembly process
- KU12.** impact of various assembly process like bolting, torqueing, tightening, fitting, greasing, hammering, sealing, clamping on the final component/vehicle
- KU13.** application of various sealing compounds, gaskets and adhesives
- KU14.** various types of defects and their effect on final assembly
- KU15.** the post assembling processes like inspection, cleaning etc.
- KU16.** the various methods for inspecting the final assembly
- KU17.** safety requirements during the assembling work

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 assembly process requirements to the technician and co-workers
- GS3.** communicate issues to the supervisor that occur during assembling 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 organise work according to the work requirements
- GS9.** complete the assigned tasks within specified timeline and schedule

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare for assembly activities</i>	9	14	-	7
PC1. identify the work to be done by interpreting the assembly drawing/work instructions/SOPs	1	2	-	1
PC2. identify and arrange the tools, measuring instruments, equipment, auto components/parts and sub-assemblies as per the SOP and job requirements	2	3	-	2
PC3. select the appropriate assembling method and required tools and equipments in coordination with Electric Vehicle assembly technician	1	1	-	-
PC4. check the assembling tools, accessories, measuring instruments and equipment for any defects and clean dust and impurities from them before use	2	2	-	2
PC5. check the terminals of battery and clean them by oxidants	1	2	-	1
PC6. support in filling CLRI (clean, lubricate, retighten & inspection) check sheet and report to the supervisor about any abnormalities identified and action taken to resolve them	1	2	-	1
PC7. lift the auto component manually or by hoist and place the same securely on the designated slot/space as indicated in the drawing/work instructions	1	2	-	-
<i>Support in assembly operations</i>	12	22	-	7
PC8. follow safety practices during assembly process as per organisational SOP	1	1	-	1
PC9. support in setting of the equipment as per the selected assembly method	1	2	-	-
PC10. support in selecting the right programme in case of robotic assembly method as defined in the SOP	2	4	-	1

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. assist in assembly operations and assemble the safety parts i.e. bearings, shafts etc., battery systems, motors, electrical parts such as electric wire harness, Electronic Control Unit (ECU), automatic lock system, fuel injection system and other similar parts	4	5	-	1
PC12. assist in installation of the Oil and Lube systems by placing and fitting the funnel, filters, hose pipes, glands, sockets, suction guns and regulator valves as prescribed in the Work Instructions/ SOPs/Control Plans	2	4	-	1
PC13. support in adjusting, aligning and setting (gap and flushness) the parts, assemblies and aggregates by following Product Quality Standard (PQS)	1	3	-	1
PC14. carry out sealing of the required areas to prevent any leakage of water/air etc. during the usage of the component	1	2	-	1
PC15. support in numbering of the wires connected to batteries during the assembly process	-	1	-	1
<i>Support in post-assembly operations</i>	9	14	-	6
PC16. carry out labeling on the auto components like High voltage sticker indication etc. specifying the information related to assembly process and quality standards followed	1	2	-	1
PC17. apply appropriate lubricant on the component as per manufacturer's specifications	1	2	-	1
PC18. check and confirm that battery charge, battery water, brake oil, gear oil, engine oil etc. are filled	1	3	-	1
PC19. support the assembly technician in inspecting the final assembly for quality and defects such as loose electrical connections, battery leakage, improper use and placement of electronic components i.e. battery, motor, ECU, sensors & actuators and body surface for paint, dents, grooves, cracks, rough edges, improper part clearances etc.	3	2	-	1

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC20. check the current in battery by using multimeter	1	1	-	-
PC21. store the tools, equipment and fixtures by following organisational policies and procedures after completion of work	1	2	-	1
PC22. dispose scrap or waste material into the disposal area in accordance with the company's policies and environmental regulations	1	2	-	1
NOS Total	30	50	-	20

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	ASC/N3618
NOS Name	Support the technician in electric vehicle assembly operations
Sector	Automotive
Sub-Sector	Manufacturing
Occupation	Assembly Operation
NSQF Level	2.5
Credits	6.5
Version	2.0
Last Reviewed Date	NA
Next Review Date	24/06/2026
NSQC Clearance Date	24/06/2021

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

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	-	20	100	10
DGT/VSQ/N0101.Employability Skills (30 Hours)	20	30	-	-	50	5
ASC/N9805.Interpret engineering drawing	50	30	-	20	100	10
ASC/N3618.Support the technician in electric vehicle assembly operations	30	50	-	20	100	75
Total	150	140	-	60	350	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
CLRI	Clean, Lubricate, Retighten & Inspection
ECU	Electronic Control Unit
GD&T	Geometric Dimensioning & Tolerancing
CAD	Computer-Aided Drafting
CAM	Computer-Aided Manufacturing
CLRI	Clean, Lubricate, Retighten & Inspection
CLRI	Clean, Lubricate, Retighten & Inspection
ECU	Electronic Control Unit
CLRI	Clean, Lubricate, Retighten & Inspection
ECU	Electronic Control Unit
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

Qualification Pack

CLRI	Clean, Lubricate, Retighten & Inspection
ECU	Electronic Control Unit

Qualification Pack

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.

Qualification Pack

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.