Model Curriculum

Vehicle Assembly Fitter

SECTOR: AUTOMOTIVE
SUB-SECTOR: MANUFACTURING
OCCUPATION: ASSEMBLY
REF ID: ASC/Q3601, VERSION 1.0
NSQF LEVEL: 4

Skill India
कौशल भारत-कुशल भारत

AUTOMOTIVE SKILLS DEVELOPMENT COUNCIL

N·S·D·C National Skill Development Corporation
Transforming the skill landscape

Certificate

CURRICULUM COMPLIANCE TO QUALIFICATION PACK - NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the

AUTOMOTIVE SKILLS DEVELOPMENT COUNCIL

for

MODEL CURRICULUM

Complying to National Occupational Standards of
Job Role/Qualification Pack **"Vehicle Assembly Fitter"** QP No: **"ASC/Q3601, NSQF Level 4"**

Date of Issuance: Jan 4. 2019

Valid up to:. Jan 3, 2021*

*Valid up to the next review date of the Qualification Pack

Authorised Signatory
(Automotive Skills Development Council)

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Vehicle Assembly Fitter

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a "**Vehicle Assembly Fitter**", in the "**Automotive**" Sector/Industry and aims at building the following key competencies amongst the learner

Program Name	**Vehicle Assembly Fitter**		
Qualification Pack Name & Reference ID	ASC/Q3601, v1.0		
Version No.	1.0	**Version Update**	10 - 04 -2019
Pre-requisites to Training	10th pass		
Training Outcomes	**After completing this programme, participants will be able to:** • Identify the job requirement, processes, equipment required for the output according to the specified standards. • Prepare the required machine, equipment and work pieces for the assembly process. • Perform mechanical components assembly operations by reading drawings, arranging and joining parts together. • Perform electrical components assembly operations by reading circuit drawings, arranging and joining electrical and electronics parts together. • Conduct quality checks and inspection of the finished products for any damages, deformities and further repair the parts produced so that the damaged/ defective pieces can be corrected and right quality components. • Maintain a safe and healthy work place by adhering to the safety guidelines in the working area of the organization and following the practices which are not impacting the environment in a negative manner. • Maintain 5S in the work premises by sorting, streamlining & organizing, storage and documentation, cleaning, standardization and sustenance across the plant and office premises of the organization.		

This course encompasses 7 out of 7 National Occupational Standards (NOS) of "**Vehicle Assembly Fitter**" Qualification Pack issued by "Automotive Skills Development Council".

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	**Introduction** **Theory Duration** (hh:mm) 05:00 **Practical Duration** (hh:mm) 00.00 **Corresponding NOS Code** Bridge Module	• Explain about the course and the scope • List various OEM'S and different products/models manufactured by them. • List the job responsibilities of Vehicle Assembly Fitter. • List job opportunities and career path for a Vehicle Assembly Fitter.	
2.	**Identify processes and equipment requirement to complete the task** **Theory Duration** (hh:mm) 20:00 **Practical Duration** (hh:mm) 40:00 **Corresponding NOS Code** ASC/N3609	• Describe various types of assembling process such as bolting, tightening, riveting, fastening, adhesive clamping, crimping using mechanical, pneumatic, hydraulic tools and equipment. • Describe various assembling process parameters like cycle time, pressure, torque etc. • Identify material and equipment required for work. • List various tools and accessories required for assembling work • Demonstrate safe operation of various hand tools, power tools, hydraulic and pneumatic tools required during assembling process. • Identify various measuring instruments and gauges required during work. • Demonstrate operation of various measuring instruments and gauges required during work. • Identify impact of various physical parameters like torqueing and tightening on the properties of final output product like durability, surface finish, part movement, aesthetics etc. • Follow does and don'ts of the manufacturing process. • Follow safety precautions while working on shop floor.	Assembly drawing / blue print Manuals Assembly plan, Work order, SOP Record, **Safety Gears** Safety Shoes, Ear plug, Safety goggles, Safety Gloves, Safety helmet, Respiratory equipment, **Assembly tools, equipment and material** Riveting machine, Ball peen hammer, Cutting machine, Winding machine, Grinding machine, Drilling machine, Riveting guns, Pneumatic guns, Spanner set, Screw driver set, Allen keys, Pliers, Wrenches, Crimpers, Fasteners, Chisels, Bolts, Nuts Screws, Rubber seals, Wires, Hydraulic press, Adhesive bonding equipment, But runners wrenches, Soldering iron, Jigs, Fixtures, Greases, Lubricant oil, Adhesives, ID stickers/labels **Measuring Instruments:** Steel rule, Vernier caliper, Vernier height gauge, Micrometer, Try square, Vernier bevel protractor, Pin set, Torque meter

Sr. No.	Module	Key Learning Outcomes	Equipment Required
			Lifting devices Hoists, Cranes, Conveyors, Bins, Part trolleys, Pallet trucks **Cleaning tools and miscellaneous** Cleaning cloth, Waste container, Dust pan & brush set
3	**Prepare the machine, auxiliaries and work pieces for the assembly** **Theory Duration** (hh:mm) 20:00 **Practical Duration** (hh:mm) 40:00 **Corresponding NOS Code** ASC/N3610	• Identify material, tools and equipment required for work. • Explain process of procuring material like greases, lubricant oil, adhesives, marking equipment, ID stickers/ labels from store. • Demonstrate setup of assembling apparatus. • Follow operation standards while setting up the machines. • Perform cleaning of assembling gun or bolting gun as per shop. • Conduct inspection of hoists & cranes required for lifting the parts before using. • Escalate queries to the supervisor/master technician and obtain his help/advice.	Assembly drawing / blue print Manuals Assembly plan, Work order, SOP Record, **Safety Gears** Safety Shoes, Ear plug, Safety goggles, Safety Gloves, Safety helmet, Respiratory equipment, **Assembly tools, equipment and material** Riveting machine, Ball peen hammer, Cutting machine, Winding machine, Grinding machine, Drilling machine, Riveting guns, Pneumatic guns, Spanner set, Screw driver set, Allen keys, Pliers, Wrenches, Crimpers, Fasteners, Chisels, Bolts, Nuts Screws, Rubber seals, Wires, Hydraulic press, Adhesive bonding equipment, But runners wrenches, Soldering iron, Jigs, Fixtures, Greases, Lubricant oil, Adhesives, ID stickers/labels, **Measuring Instruments:** Steel rule, Vernier caliper, Vernier height gauge, Micrometer, Try square, Vernier bevel protractor, Pin set, Torque meter **Lifting devices** Hoists, Cranes, Conveyors, Bins, Part trolleys, Pallet trucks **Cleaning tools and miscellaneous**

Sr. No.	Module	Key Learning Outcomes	Equipment Required
			Cleaning cloth, Waste container, Dust pan & brush set
4	**Perform mechanical assembly operation** **Theory Duration** (hh:mm) 30:00 **Practical Duration** (hh:mm) 50:00 **Corresponding NOS Code** ASC/N3611	• Interpret information from drawings for mechanical components assembly requirements. • Identify different tools, accessories and equipment required for mechanical components assembly. • Demonstrate equipment aligning process on assembly line by using hoist. • Demonstrate use of hydraulic and pneumatic tools required for work. • Perform assembly of mechanical components in vehicle. • Perform insertion and tightening of bolts, screw, rivet on the right place. • Identify and operate various measuring instruments, gauges and meters required for work. • Demonstrate proper installation/ assembly process of oil and lube systems by placing the funnel, filters, hose pipes, glands, sockets, suction guns and regulator. • Demonstrate sealing of vehicle components to prevent water leakage. • Identify various parameters orientation, alignment and angle adjustment – value of angle, distance, response to gauges. • Demonstrate lubrication of vehicle components. • Perform fuel filling operation in various parts fitted on the vehicle. • Inspect machine for proper functioning and its capabilities. • Perform Dynamometer, Head lamp alignment test, shower and preformation test wheel alignment and roll and brake test on vehicle.	Assembly drawing / blue print Manuals Assembly plan, Work order, SOP Record, **Safety Gears** Safety Shoes, Ear plug, Safety goggles, Safety Gloves, Safety helmet, Respiratory equipment, **Assembly tools, equipment and material** Riveting machine, Ball peen hammer, Cutting machine, Winding machine, Grinding machine, Drilling machine, Riveting guns, Pneumatic guns, Spanner set, Screw driver set, Allen keys, Pliers, Wrenches, Crimpers, Fasteners, Chisels, Bolts, Nuts Screws, Rubber seals, Wires, Hydraulic press, Adhesive bonding equipment, But runners wrenches, Soldering iron, Jigs, Fixtures, Greases, Lubricant oil, Adhesives, ID stickers/labels, **Measuring Instruments:** Steel rule, Vernier caliper, Vernier height gauge, Micrometer, Try square, Vernier bevel protractor, Pin set, Torque meter **Lifting devices** Hoists, Cranes, Conveyors, Bins, Part trolleys, Pallet trucks **Cleaning tools and miscellaneous** Cleaning cloth, Waste container, Dust pan & brush set
5	**Perform electrical assembly operation**	• List the activities to be carried out from drawings/circuit diagrams for	Assembly drawing / blue print Manuals Assembly

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	Theory Duration (hh:mm) 30:00 **Practical Duration** (hh:mm) 50:00 **Corresponding NOS Code** ASC/N3612	electrical components assembly requirements. • Identify electrical and electronic component symbols in drawings. • Identify wires according to their color codes. • Identify different tools, accessories and equipment required for electrical components assembly. • Identify and operate various gauges, meters, graphs, dials utilized during assembly work. • Perform assembly of electrical and electronic components in vehicle. • Perform routing of wire in vehicle according to circuit diagram. • Demonstrate tapping operation to ensure hassle free electrical connections. • Demonstrate high frequency welding for assembly work. • Identify correct program from the program module of the CNC operated assembly machine/ cutting machine/ winding machine. • Demonstrate testing techniques of electrical components. • Identify impact of various electrical conditions on the performance of the equipment.	plan, Work order, SOP Record, **Safety Gears** Safety Shoes, Ear plug, Safety goggles, Safety Gloves, Safety helmet, Respiratory equipment, **Assembly tools, equipment and material** Riveting machine, Ball peen hammer, Cutting machine, Winding machine, Grinding machine, Drilling machine, Riveting guns, Pneumatic guns, Spanner set, Screw driver set, Allen keys, Pliers, Wrenches, Crimpers, Fasteners, Chisels, Bolts, Nuts Screws, Rubber seals, Wires, Hydraulic press, Adhesive bonding equipment, But runners wrenches, Soldering iron, Jigs, Fixtures, Greases, Lubricant oil, Adhesives, ID stickers/labels, **Measuring Instruments:** Steel rule, Vernier caliper, Vernier height gauge, Micrometer, Try square, Vernier bevel protractor, Pin set, Torque meter **Lifting devices** Hoists, Cranes, Conveyors, Bins, Part trolleys, Pallet trucks **Cleaning tools and miscellaneous** Cleaning cloth, Waste container, Dust pan & brush set
6	**Perform inspection, quality check and operational testing of the component/ vehicle** **Theory Duration** (hh:mm)	• Identify the tools and equipment required for inspection and testing • Describe various testing procedures for components and vehicle • List the various defects in vehicle and its components	Assembly drawing / blue print Manuals Assembly plan, Work order, SOP Record **Safety Gears** Safety Shoes, Ear plug, Safety goggles, Safety

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	15:00 **Practical Duration** (hh:mm) 30:00 **Corresponding NOS Code** ASC/N3613	• Demonstrate procedure of repairing various defects in an vehicle and its components • Perform inspection of all major components of the vehicle • Identify and mark physical defects observed on the vehicle body. • Describe dynamometer testing process. • Demonstrate testing of torque, horsepower, speed, roll speed, acceleration and heat load of the vehicle by dynamometer testing. • Perform wheel balancing test and note down the readings. • Identify run out for all radial tyres • Inspect lighting circuit and headlamps focus for defects. • Inspect vehicle dashboard, horn and indicator for defects. • Describe shower test process. • Demonstrate shower test for testing of nozzles, water supply pipes, water circulation motor and the blower. • Record shower test readings and identify defects. • Perform testing of components like brakes, shock absorber for defects. • Perform vehicle cleaning and dispatch process.	Gloves, Safety helmet, Respiratory equipment **Assembly tools, equipment and material** Riveting machine, Ball peen hammer, Cutting machine, Winding machine, Grinding machine, Drilling machine, Riveting guns, Pneumatic guns, Spanner set, Screw driver set, Allen keys, Pliers, Wrenches, Crimpers, Fasteners, Chisels, Bolts, Nuts Screws, Rubber seals, Wires, Hydraulic press, Adhesive bonding equipment, But runners wrenches, Soldering iron, Jigs, Fixtures, Greases, Lubricant oil, Adhesives, ID stickers/labels **Measuring Instruments:** Steel rule, Vernier caliper, Vernier height gauge, Micrometer, Try square, Vernier bevel protractor, Pin set, Torque meter **Lifting devices** Hoists, Cranes, Conveyors, Bins, Part trolleys, Pallet trucks **Cleaning tools and miscellaneous** Cleaning cloth, Waste container, Dust pan & brush set
7	**Maintain a healthy, safe and secure working environment at the workplace** **Theory Duration** (hh:mm) 15:00 **Practical Duration** (hh:mm) 20:00	• List workplace hazards and risks • Use personal protective equipment like safety gloves, safety goggles, safety shoes and safety helmet at workplace. • Identify activities which can cause potential injury • Report concerned authorities about the potential risks • Report concerned authorities about machine breakdowns, damages	Cleaning agents, Cleaning cloth, Waste container, Dust pan & brush set, Liquid soap, Hand towel, Fire extinguisher, Portable welding curtains, Leather safety gloves, leather aprons, safety glasses with side shields, Ear Plug, Welding respirator, Screen welding helmet type with filter glasses, Safety Shoe and First aid kit

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	Corresponding NOS Code ASC/N0006	• Support the safety team and the supervisor in creating the risk mitigation plan • Follow the instructions given in the equipment manual • Follow the safety, health and environment related practices • Follow safety signs placed on the shop floor • Operate the machine using the recommended Personal Protective Equipment (PPE). • Demonstrate use of fire-fighting equipment. • List the contents of first aid kit. • Maintain a clean and safe working environment • Attend all safety and fire drills to be self-aware of safety hazards and preventive techniques • Maintain high standards of personal hygiene at the work place • Follow organizational procedure of waste disposal • Report appropriately to medical officer/ HR in case of self or an employee's illness	
8	**Maintain 5S at the work premises** **Theory Duration** (hh:mm) 15:00 **Practical Duration** (hh:mm) 20:00 **Corresponding NOS Code** ASC/N0021	• Examine that work area, tools, equipment and materials are clean • Maintain proper storage for the inventory, cleaning material and equipment. • Demonstrate personal hygiene and cleanliness at workplace. • Identify daily cleaning standards and schedules to create a clean working environment • Sort and label materials, tools and equipment's and spare parts while storing. • Segregate waste into hazardous and non-hazardous waste and dispose the waste as per SOP. • Follow 5S guidelines at workplace	Fire extinguisher, First-aid, BS IV-VI and disposal of hazardous items and parts to provide an overview
	Total Duration	• Assembly drawing / blue print Manuals Assembly plan, Work order, SOP Record,	

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	Theory Duration (hh:mm) 150:00 **Practical Duration** (hh:mm) 250:00	• **Safety Gears:** Safety Shoes, Ear plug, Safety glasses, Safety Gloves, Safety helmet, Respiratory equipment, • **Assembly tools, equipment and material**: Riveting machine, Ball peen hammer, Cutting machine, Winding machine, Grinding machine, Drilling machine, Orbit sander/polishers, Riveting guns, Pneumatic guns, Spanner set, Screw driver set, Allen keys, Pliers, Wrenches, Crimpers, Fasteners, Chisels, Bolts, Nuts Screws, Rubber seals, Wires, Hydraulic press, Adhesive bonding equipment, Not runners wrenches, Soldering iron, Jigs, Fixtures, Greases, Lubricant oil, Adhesives, ID stickers/labels, • **Measuring Instruments**: Steel rule, Vernier caliper, Vernier height gauge, Micrometer, Try square, Vernier bevel protractor, Pin set, Torque meter • **Lifting devices**: Hoists, Cranes, Conveyors, Bins, Part trolleys, Pallet trucks • **Cleaning tools and miscellaneous:** Cleaning cloth, Waste container, Dust pan & brush set • Fire extinguisher, First aid,	

Grand Total Course Duration: **400 Hours, 0 Minutes**

*(This syllabus/ curriculum has been approved by **Automotive Skills Development Council)***

Trainer Prerequisites for Job role: "Vehicle Assembly Fitter" mapped to Qualification Pack: "ASC/Q3601, Version 1.0"

S. No.	Area	Details
1	**Description**	To deliver accredited training service, mapping to the curriculum detailed above, in accordance with the Qualification Pack "ASC/Q3601, Version 1.0".
2	**Personal Attributes**	• Aptitude for conducting training, and pre/ post work to ensure competent, employable candidates at the end of the training. • Strong communication skills, interpersonal skills, ability to work as part of a team; a passion for quality and for developing others; well organized and focused. • Eager to learn and keep oneself abreast of the latest developments and newer technologies used in the various systems of the vehicle and its aggregates is highly desirable. • Should be able to demonstrate the usage of workshop equipment, instruments, special instruments and tools. • Should be hands-on with assembling of vehicles to provide actual training.
3	**Minimum Educational Qualifications**	ITI/ Diploma /Engineer (mechanical engineering) from a recognized institute
4a	**Domain Certification**	Certified for Job Role: "Vehicle Assembly Fitter" mapped to QP: ASC/Q3601, V1.0. Minimum qualifying score - 80%, as per ASDC guidelines.
4b	**Platform Certification**	Recommended that the Trainer is certified for the Job Role: "Trainer", mapped to the Qualification Pack: "MEP/ Q2601". Minimum accepted score as per ASDC guidelines is 80%.
5	**Experience**	▪ Minimum 5 years of experience in Automotive Industry for ITI ▪ Minimum 3 years of experience in Automotive Industry for Diploma/ Engineer (mechanical engineering) ▪ Working experience on latest tools and equipment used for vehicle assembly

Annexure: Assessment Criteria

Assessment Criteria	
Job Role	Vehicle Assembly Fitter
Qualification Pack	ASC/Q3601, v1.0
Sector Skill Council	Automotive

Sr. No.	Guidelines for Assessment
1	Assessment to be conducted by ASDC as per competency output defined in the NOS/QP and the assessment criteria provided in the NOS/QP
2	Assessment to be carried out by a third-party Assessment Body duly affiliated to the SSC.
3	ASDC assessments will be comprehensive and cover all aspects of acquired knowledge, practical skills and also basic ability to communicate. Accordingly, evaluation process would include: i. Theory/Knowledge test ii. Practical demonstration test iii. Face to Face Viva-Voice
4	Theory/Knowledge assessment will be carried out on line through a link provided for each assessment that generates a random paper from a bank of questions available at the back end. • Exception to an online test in favour of Paper Test would be subject to non availability of requisite broad band and/or hardware. • On line test would be conducted in the presence of an ASDC assessor till web enabled proctoring is deployed.
5	ASDC assessor would be conducting Practical and Viva as per the criteria provided in the NOS/QP.
6	Cut off criteria for certification (Marks obtained in: 70%)

Assessable Outcome	Assessment Criteria	Total Mark	Out of	Marks allocation	
				Theory	Practical
1. ASC/N3609 Understand processes and equipment requirement to complete the task	PC1. Understand the right assembling methodology and process (Bolting, tightening, riveting, fastening, adhesive clamping, crimping etc.) using mechanical, pneumatic, hydraulic means to be adopted for completing the work order through discussions with the supervisor/ master technician and reading the process manuals/ Work Instructions/ Standard Operating Procedures	100	10	3	7
	PC2. Understand the various assembling process parameters like cycle time, pressure, torque etc. before starting the assembling process, as mentioned in the Work Instructions/ SOP manual		10	3	7

	PC3. Understand the material required and the equipment availability for executing the activity		10	3	7
	PC4. Understand the type of nut runners and torqueing equipment required to be used for the assembling process		10	3	7
	PC5. Understand the various nuts, bolts, rivets, fasteners, covering sheaths etc. kept in the various side trays (Assembly kits)		10	3	7
	PC6. Understand 5S and Safety related aspects related to the work station, assembly Line		10	3	7
	PC7. Clearly understanding the does and don'ts of the manufacturing process as defined in SOPs/ Work Instructions or defined by supervisors		10	3	7
	PC8. Refer the queries to a competent internal specialist if they cannot be resolved by the assembler on own		10	3	7
	PC9. Obtain help or advice from specialist if the problem is outside his/her area of competence or experience		10	3	7
	PC10. Confirm self -understanding with the specialist holding discussions so that all doubts & queries can be resolved before the actual process execution		10	3	7
	Total		**100**	**30**	**70**
2. ASC/N3610 Preparing the assembling machine, auxiliary apparatus and metal work pieces for the assembling process	PC1. Understand the material required and the equipment availability for executing the activity	100	10	3	7
	PC2. Ensure that the required material is procured from the store before starting the assembling process– availability of greases, lubricant oil, adhesives, marking equipment, ID stickers/ labels		11	3	8
	PC3. Ensure availability of tools required for the assembly process as per the components to be assembled. Tool sizes as mentioned in the Work Instructions/ SOPs for assembly		12	4	8
	PC4. Ensure that the helper/ assistant technician brings the required material and tools before the start of the assembling operations		11	3	8
	PC5. Setup the assembling apparatus as per the selected assembling process and the internal SOPs/ Work Instructions and the setting standards for the machine.		12	4	8
	PC6. Ensure that the surface of the assembling gun/ Bolting gun is cleaned to remove dust and any other impurities		11	3	8

	PC7. Ensure that the hoists & cranes for lifting the parts are working in order as per the process requirement		12	4	8
	PC8. Immediately refer the queries to the supervisor to avoid any delay in the actual process		11	3	8
	PC9. Confirm self-understanding to the supervisor/ master technician during the discussions so that all doubts & queries can be resolved before the actual process execution		10	3	7
	Total		**100**	**30**	**70**
3. ASC/N3611 Performing the mechanical assembling operation for all mechanical components	PC1. Understand the assembly operations from the assembly drawing/ blue print Work Instructions/ SOPs supplied on the assembly line	150	3	1	2
	PC2. Understand the correct method of the assembly operation such as angle for holding the bolting gun/ riveting gun, direction of applying torque, position of technician hand/ body to complete the assembly operation keeping in mind safe working procedures		4	1	3
	PC3. Ensure drop of sub-assemblies like frame, base, tubes, pipes, channels. at the respective stations without damaging the components in case		4	1	3
	PC4. Correctly Position or align components for assembly, manually or using hoists		4	1	3
	PC5. Ensure that hoists are used to lift the right material from the conveyors, bins, part trolleys etc.		4	1	3
	PC6. Ensure part clearances as specified in the Work Instructions/ Standard Operating Processes		4	1	3
	PC7. Assemble the required parts using pneumatic, hydraulic/ PLC controlled assembly tools		4	1	3
	PC8. Pick the right fastening part and right tightening tool from the right tray/ kit trolley as identified in the Drawing/ Standard Operating Procedure/ Work Instruction and is correctly placed in the designated slot/ space as indicated in the Work Instructions/ SOP		4	1	3
	PC9. In case of Robotic assembly line, ensure that the correct details are fed into the system and the right program is selected (corresponding to the component/ vehicle under assembly)		4	1	3
	PC10. Carefully insert the right bolts, screw, rivet in the required place in the part of be assembled		4	1	3
	PC11. Perform tightening of nuts and bolts using bolting guns/ riveting guns as per		5	2	3

	the required specifications for fitment of each part				
	PC12. Ensure right amount of torque application for tightening the bolted components.		5	2	3
	PC13. Check the torque values using a torqueing meter and validate the same with the torque chart provided on the assembly station		4	1	3
	PC14. Ensure all pneumatic and hydraulic components in the vehicles and the relevant auto components are installed using the correct methodology as indicated in the Work Instructions/ SOPs/ Control Plans		5	2	3
	PC15. Ensure using the right couplers, tee joints, elbow joints, connectors, sleeves, nuts and other connecting and tightening mechanisms to assembly the pneumatic/hydraulic line components like hose pipes, tanks, sockets, glands etc.		5	2	3
	PC16. Ensure proper installation/ assembly of Oil and Lube systems by placing the funnel, filters, hose pipes, glands, sockets, suction guns and regulator values and fitting them using couplers, nuts, screws as prescribed in the Work Instructions/ SOPs/ Control Plans		4	1	3
	PC17. Ensure proper sealing of the required areas to prevent any leakage of water/ air etc. during the usage of the component/ vehicle		4	1	3
	PC18. Ensure completion of other relevant assembly processes like adjustment, ID Sticker application and minor rework procedures like hammering etc. for the component assembly process adhere to the assembly quality norms specified by the organization		5	2	3
	PC19. Ensure proper lubrication of parts as instructed in the Work Instructions/ SOP		5	2	3
	PC20. Ensure that the assembly operations are completed as per the specified time and performance levels		5	2	3
	PC21. Ensure that the fixtures and the assembly equipment is kept back to their respective locations once the process has been completed		4	1	3
	PC22. Ensure that the tools and fixtures are maintained in the proper locations and are checked as per the checklist provided by the maintenance team		5	2	3
	PC23. Ensure proper quality checks at each assembly station and validate the conformance to the drawing/ blueprint/		5	2	3

	Work Instruction/ SOPs supplied to the assembly station				
	PC24. Ensure that while assembling the components at a particular work station/ platform, care is taken to ensure fitment of the components in the successive stations		4	1	3
	PC25. Ensure that while assembling the components, the aesthetic properties of the final output like component is maintained		4	1	3
	PC26. Ensure proper disposal of residual greases, adhesives, metal chips and scrap, plastic and paper waste etc. in the designated place as per the Standard Operating Procedure for waste disposal		4	1	3
	PC27. Ensure proper storage of extra grease, lubrication oil etc. to prevent any contamination through moisture, dust, dirt		4	1	3
	PC28. Ensure insertion of pins, sleeves, bushes, bearings, connectors etc. in the housing as per the Work Instructions/ SOPs mentioned		4	1	3
	PC29. Ensure orientation, alignment and angle adjustment – value of angle, distance, response to gauges		4	1	3
	PC30. Ensure tightening of threaded fasteners – torque level of tightening and sequencing of fastening		4	1	3
	PC31. Ensure sealing of gap areas with rubber or adhesives as per the Work Instructions/ SOPs		4	1	3
	PC32. Ensure proper lubrication/ greasing/ oiling of components as per the quantity of application mentioned in the Work Instructions/ SOPs		4	1	3
	PC33. Safely conduct the fuel filling operation at the respective station		4	1	3
	PC34. Ensure that proper safety norms are followed at the time of the Vehicle fuelling		4	1	3
	PC35. Verify functioning, machine capabilities, or conformance to customer specifications		3	1	2
	PC36. Complete the Dynamometer, Head lamp focus, shower, wheel alignment and roll & brake testing		3	1	2
	Total		**150**	**45**	**105**
4. ASC/N3612 Performing the electrical assembling operation	PC1. Understand the assembly operations from the assembly drawing/ blue print / Circuit Diagram/ Work Instructions/ SOPs supplied on the assembly line	100	3	1	2
	PC2. Understand the correct method of the assembly operation such as angle for holding the soldering gun, direction of		3	1	2

	applying torque, position of technician hand/ body to complete the assembly operation keeping in mind safe working procedures				
PC3.	Read the specifications manuals and plan assembly operations		3	1	2
PC4.	Correctly position or align components for assembly, manually or using hoists, clamps etc. for holding the electrical parts together on the Jig Board/ Assembly line		3	1	2
PC5.	Pick the right fastening part (Connectors, terminals, couplers), right tightening tool and the right colored wires from the right tray/ kit trolley as identified in the Drawing/ Standard Operating Procedure/ Work Instructions		3	1	2
PC6.	Select the correct program from the program module of the CNC operated assembly machine/ cutting machine/ winding machine		4	1	3
PC7.	Ensure wire cutting as per the required length specified in the work order		4	1	3
PC8.	Check the wire dimensions using micrometers. Rectify any deviations by changing the machine setting		4	1	3
PC9.	Select the correct terminals/ connectors/ clips and attach the terminals to the correct wires		5	2	3
PC10.	Install components, units, wires and subassemblies using screws, fasteners or through joining process like high frequency welding or soldering as per the dimensions mentioned in the work instructions/ SOP manual		4	1	3
PC11.	Ensure proper installation of rubber glands/ rubber seals to provide insulation/ prevention of moisture seepage		3	1	2
PC12.	Ensure proper routing of the wires and the cables as indicated in the Work Instructions, circuit drawing/ Work Instructions/ SOPs provided at each station		4	1	3
PC13.	Ensure proper crimping of the wire terminals and twisting of wire bunch as specified in the Work Instructions		4	1	3
PC14.	Remove loops and entanglements and do the tapping operation to ensure hassle free electrical connections		4	1	3
PC15.	Check the correct orientation of the clip from the circuit diagram		4	1	3
PC16.	In case of electronic component assembly, ensure selection of components as per the capacity/ rating required for the component		4	1	3

	PC17. Ensure proper placement of the electronic components on the blank PCB as per the circuit diagram		3	1	2
	PC18. Solder the components using manual soldering rod/ automatic solder by applying the specified current and temperature and the flux, as specified in the Work Instructions		4	1	3
	PC19. Ensure correct bundling of the wires and terminals which need to be welded		4	1	3
	PC20. Place and align the wires as per the work standards		3	1	2
	PC21. Adjust the wire bundles on the welding block and properly clamp the bundle		3	1	2
	PC22. Adjust current settings and pass High frequency current through the bundled wires to bond them together		3	1	2
	PC23. Put insulator/ safety sheaths on the crimped/ welded wires for protection		3	1	2
	PC24. Conduct visual inspection of the bundled electrical and electronics wiring, Circuits and harness		3	1	2
	PC25. Check for orientation of terminals		3	1	2
	PC26. Check for correct product number and connections as specified in the Work Instructions		3	1	2
	PC27. Check for correct Input /output connectors		3	1	2
	PC28. Test for any short circuit/ open circuit through the lamp glow test		3	1	2
	PC29. Inspect the wire bundle for length, orientation, path, part fitment and before packing the wire assembly		3	1	2
	Total		**100**	**30**	**70**
5. ASC/N3613 Performing the quality checks and inspection of the finished products (Auto Components / Vehicles)	PC1. Ensure full inspection of the physical body of the Auto Component/ Automobile to detect any quality related defects related to body surface, paint, dents, grooves, cracks, rough edges etc.	100	3	1	2
	PC2. Ensure inspection of the specimen in proper lighting so that detection of errors is fast and accurate		3	1	2
	PC3. Ensure inspection of all major components of the automobile including body surface, doors, tyres, wheels, wind shield, internal seating, dashboard etc.		3	1	2
	PC4. Ensure part clearances as specified in the Work Instructions/ Standard Operating Processes		3	1	2
	PC5. Mark all the observed physical detects using a chalk stick or any other erasable substance to identify the potential rework areas which can be immediately addressed to team		3	1	2
	PC6. Ensure that every manufactured vehicle is rolled up to the dynamometer testing		3	1	2

	area to test the torque, Horsepower, speed, roll speed and heat load				
	PC7. Ensure that the connections for the test vehicle are properly applied to the test bench		4	1	3
	PC8. Ensure that the vehicle is accelerated to the desired limits as indicated in the Test station chart and Standard Operating Procedures		4	1	3
	PC9. Observe the control panel and display of the dynamometer and record the readings in the given formats		4	1	3
	PC10. Ensure that the vehicle is properly mount on the wheel balancing machine to test vibration of the wheels and tires.		4	1	3
	PC11. Conduct the test and record any observations on wheeling wobbling, vibrations and any other type of disturbances		4	1	3
	PC12. Ensure Runout for all radial tyres as per the standards laid down in the Work Instructions/ SOPs/ Control Plan		5	2	3
	PC13. Ensure correct observations of all performance testing charts and graphs to note the performance characteristics and related reading and test values/ outcome		4	1	3
	PC14. Ensure that the errors are tagged/ marked immediately so that they can be rectified at the earliest and the vehicle can be prepared for dispatch		4	1	3
	PC15. Ensure that all the errors observed are noted in the log books as per the format shared with the operators		5	2	3
	PC16. Ensure the working of the lighting systems and the headlamp focus by turning on the internal cabin lights and headlamps and checking the working of lighting circuit and headlamps focus		4	1	3
	PC17. Check the working of the key vehicle dashboard indicators by turning on the engine		4	1	3
	PC18. Ensure that the horn and Indicator system are working by turning on the respective systems and checking the horn and indicator circuit		4	1	3
	PC19. Ensure that every Automobile manufactured undergoes a shower test for testing water leakages in the vehicle		4	1	3
	PC20. Ensure that all shower nozzles, water supply pipes, water circulation motor and the blower are in order		4	1	3
	PC21. Ensure that all doors and windows are tightly closed when the automobile enters the Shower testing area		3	1	2

	PC22. Ensure that the correct parameters on water pressure, water spray angles and test time are followed during the test		3	1	2
	PC23. Monitor the flow of water and detect any leakages happening through wind shield, tailgate shield, windows and door frame/ rubber padding on doors & windows		3	1	2
	PC24. Ensure that the errors are informed to the supervisor immediately so that they can be rectified and the vehicle can be prepared for dispatch		3	1	2
	PC25. Conduct testing for components like brakes, shock absorbers etc. and observe the performance values on parameters like loading, resistance etc.		3	1	2
	PC26. Ensure the tests meets the required performance levels as indicated in the Work Instructions/ SOP manuals		3	1	2
	PC27. Clean the automobile after the shower test and make it ready for dispatch. Use manual cleaning methods, component washer, air pressure as per application		3	1	2
	PC28. Check the availability of all the Vehicle manuals and the relevant manufacturing papers in the Automobile for the customer		3	1	2
	Total		**100**	**30**	**70**
6. ASC/N0006 Maintain a safe and healthy working environment	PC1. Identify activities which can cause potential injury through sharp objects, burns, fall, electricity, gas leakages, radiation, poisonous fumes, chemicals, loud noise.	100	6	2	4
	PC2. Identify areas at work place which are potentially hazardous/ unhygienic in nature		6	2	4
	PC3. Conduct regular checks with support of the maintenance team on machine health to identify potential hazards due to wear and tear of machine for prevention and corrective actions.		7	2	5
	PC4. Inform the concerned authorities about the potential risks identified in the processes, workplace area/ layout, materials used etc.		7	2	5
	PC5. Inform the concerned authorities about damages which can potentially harm man/ machine during operations		7	2	5
	PC6. Create awareness amongst other by sharing information on the identified risks.		7	2	5
	PC7. Support the Safety team and the supervisor in creating the risk mitigation plan.		7	2	5

	PC8. Follow the instructions given on the equipment manual describing the operating process of the equipment.		7	2	5
	PC9. Follow the Safety, Health and Environment related practices developed by the organization.		7	2	5
	PC10. Operate the machine using the recommended Personal Protective Equipment (PPE) and ensure team members also use the related PPEs at the workplace.		7	2	5
	PC11. Maintain a clean and safe working environment near the workplace and ensure there is no spillage of chemicals, production waste, oil, solvents etc.		7	2	5
	PC12. Attend all safety and fire drills to be self-aware of safety hazards and preventive techniques.		7	2	5
	PC13. Maintain high standards of personal hygiene at the work place.		6	2	4
	PC14. Ensure that the waste disposal takes place in the designated area as per organization SOP.		6	2	4
	PC15. Inform the medical officer/ HR in case of self or an employee's illness of contagious nature so that preventive actions can be planned for others.		6	2	4
	Total		**100**	**30**	**70**
7. ASC/N0021 Maintain 5S at the work premises	PC1. Follow the sorting process and check that the tools, fixtures & jigs that are lying on workstations are the ones in use and un-necessary items are not cluttering the workbenches or work surfaces.	100	3	1	2
	PC2. Ensure segregation of waste in hazardous/ non-Hazardous waste as per the sorting work instructions.		3	1	2
	PC3. Follow the technique of waste disposal and waste storage in the proper bins as per SOP.		3	1	2
	PC4. Segregate the items which are labeled as red tag items for the process area and keep them in the correct places.		4	1	3
	PC5. Sort the tools/ equipment/ fasteners/ spare parts as per specifications/ utility into proper trays, cabinets, lockers as mentioned in the 5S guidelines/ work instructions.		4	1	3
	PC6. Ensure that areas of material storage areas are not overflowing.		4	1	3
	PC7. Properly stack the various types of boxes and containers as per the size/ utility to avoid any fall of items/ breakage and also enable easy sorting when required.		4	1	3
	PC8. Return the extra material and tools to the designated sections and make sure that		4	1	3

	no additional material/ tool is lying near the work area.				
	PC9. Follow the floor markings/ area markings used for demarcating the various sections in the plant as per the prescribed instructions and standards.		4	1	3
	PC10. Ensure proper labeling mechanism of instruments/ boxes/ containers and maintaining reference files/ documents with the codes and the lists.		4	1	3
	PC11. Check that the items in the respective areas have been identified as broken or damaged		4	1	3
	PC12. Follow the given instructions and check for labeling of fluids, oils. Lubricants, solvents, chemicals etc. And proper storage of the same to avoid spillage, leakage, fire etc.		4	1	3
	PC13. Make sure that all material and tools are stored in the designated places and in the manner indicated in the 5S instructions.		4	1	3
	PC14. Check whether safety glasses are clean and in good condition.		4	1	3
	PC15. Keep all outside surfaces of recycling containers are clean		4	1	3
	PC16. Ensure that the area has floors swept, machinery clean and generally clean. In case of cleaning, ensure that proper displays are maintained on the floor which indicate potential safety hazards		4	1	3
	PC17. Check whether all hoses, cabling & wires are clean, in good condition and clamped to avoid any mishap or mix up.		4	1	3
	PC18. Ensure workbenches and work surfaces are clean and in good condition.		4	1	3
	PC19. Follow the cleaning schedule for the lighting system to ensure proper illumination.		4	1	3
	PC20. Store the cleaning material and equipment in the correct location and in good condition.		4	1	3
	PC21. Ensure self-cleanliness - clean uniform, clean shoes, clean gloves, clean helmets, personal hygiene.		4	1	3
	PC22. Follow the daily cleaning standards and schedules to create a clean working environment.		3	1	2
	PC23. Attend all training programs for employees on 5S.		3	1	2
	PC24. Support the team during the audit of 5S.		3	1	2
	PC25. Participate actively in employee work groups on 5S and encourage team members for active participation.		3	1	2
	PC26. Follow the guidelines for What to do and What not to do to build sustainability in		3	1	2

	5S as mentioned in the 5S check lists/ work instructions.				
	Total		**100**	**30**	**70**
	Grand Total	**750**	**750**	**225**	**525**
	Percentage Weightage (%)			**30**	**70**