Model Curriculum

Auto Body Repair Technician Level 4

SECTOR: AUTOMOTIVE
SUB-SECTOR: AUTOMOTIVE VEHICLE SERVICE
OCCUPATION: TECHINICAL SERVICE & REPAIR
REF ID: ASC/Q1405, 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 **"Auto Body Repair Technician Level 4"** QP No: **"ASC/Q1405, NSQF Level 4"**

Date of Issuance: August 12th, 2018

Valid up to: July 12th, 2020*

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

Authorised Signatory
(Automotive Skills Development Council)

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Auto Body Repair Technician Level 4

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a "**Auto Body Repair Technician Level 4**", in the "**Automotive**" Sector/Industry and aims at building the following key competencies amongst the learner

Program Name	**Auto Body Repair Technician Level 4**		
Qualification Pack Code	ASC/Q1405, v 1.0		
Version No.	1.0	**Version Update**	10-04-2019
Pre-requisites to Training	Class X		
Training Outcomes	**After completing this programme, participants will be able to:** • Carryout inspection of vehicle chassis and body components for any damage. • Carryout repairing or replacement of the damaged vehicle body and chassis components. • Carry out repairs for metal corrosion on structural panels. • Maintain quality standards and manage organizational resources efficiently and effectively. • Follow organizational policies and procedures for working with colleagues. • Follow prevailing environmental norms, government policies, and work to eliminate common breaches in health & safety.		

This course encompasses 5 out of 5 National Occupational Standards (NOS) of "**Auto Body Repair Technician Level 4**" 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 its scope • List OEM'S and different products/models manufactured by them. • Describe service process of an automotive workshop • List responsibilities of an auto body repair technician. • List job opportunities for an auto body repair technician	

2.	**Repair and replace vehicle body and chassis components**
	
	Theory Duration
	(hh:mm)
	45:00
	
	Practical Duration
	(hh:mm)
	100:00
	
	Corresponding NOS Code
	ASC/ N1412
		• Identify the need for repair or replacement of various body or chassis components of vehicle.
		• Demonstrate inspection of overall damage to vehicle body and chassis components.
		• List tools and equipment required for the body component/ chassis repair in the vehicle.
		• Demonstrate process of realigning the panels and components of vehicle on correct position.
		• Demonstrate dismantling of upholstery, accessories, electrical window and seat operating equipment of vehicle.
		• Demonstrate repairing procedure of vehicle components such as repairing of:
		  ○ body panels
		  ○ minor structural damage
		  ○ major welded panels
		  ○ body components using lead wiping
		  ○ laminated glass
			• Basic tool box
			• **Power tools and machines:** power grinders, hydraulic pressure machines, alignment machines, drills, drill bits, bolts, nuts and washers, air compressor, lines, air guns air compressor, lines, air guns
			• **Cutting tools:** metal-cutting guns, air grinders, hot-air welding guns, air hoses
			• **Hand tools:** pick hammers and punches, caulking guns, adhesive brushes, and mallets
			• **Holding tools**: various clamps, holding jigs, relevant special equipment,

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		○ chassis/frame and associated components • Demonstrate replacement procedure of vehicle body panels, panel sections and ancillary fittings, protector mouldings, mechanical units, electrical and electronic units of vehicle. • Demonstrate process of buffing and burnishing. • List trim materials and adhesives required for trimming process. • Demonstrate trimming process of vehicle components. • Carryout installation of windscreens, windows, laminated glass, fixed and movable body glass. • Perform welding and grinding operation for re-fitting the dismantled parts. • Demonstrate hammering process for removing dents. • Perform inspection of repaired vehicles for proper functioning and dimensional accuracy.	jacks, stands, lifting equipment • Special equipment (pressure washers, steam cleaners, spray equipment) • **Measuring instruments:** inside/ outside micrometers, vernier calipers, dial gauges, depth gauges, steel rulers, T-squares, flat edges, calipers, dividers and protractors • **PPE:** Gloves, Safety shoes, goggles, ear plugs, boiler suits • **Workshop Safety**: Fire Extinguishers, First aid kit, safety ventilation equipment • **Cleaning agents:** de-waxing, detergents, degreasers, special purpose agents
3	**Carry out repairs for metal corrosion on structural panels** **Theory Duration** (hh:mm) 45:00 **Practical Duration** (hh:mm) 100:00	• Follow standard operating procedures for servicing, repair and replacement of parts mandated by the OEM. • Identify techniques required to repair the structural panels. • Identify the need for repair of various body or chassis components as a result of vehicle metal corrosion. • Identify protective coatings or anti-corrosive pastes for repairing. • Carryout inspection of overall damage to vehicle body and chassis components.	• Basic tool box • **Power tools and machines:** power grinders, hydraulic pressure machines, alignment machines, drills, drill bits, bolts, nuts and washers, air compressor, lines, air guns air compressor, lines, air guns • **Cutting tools:** metal-cutting guns,

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	Corresponding NOS Code ASC/ N1413	• Identify various types of tools and equipment required to carry out repairs. • Demonstrate use of corrosion assessment tool for checking vehicle structural components. • Demonstrate anti - corrosion and rust prevention procedure on vehicle body. • Demonstrate replacement of protective coatings, sound deadener pads, sealers, and foams on damaged areas. • Carryout re-assembling of dismantled parts of vehicle. • Carryout inspection of repaired vehicles for proper functioning and dimensional accuracy.	air grinders, hot-air welding guns, air hoses • **Hand tools:** pick hammers and punches, caulking guns, adhesive brushes, and mallets • **Holding tools**: various clamps, holding jigs, relevant special equipment, jacks, stands, lifting equipment • Special equipment (pressure washers, steam cleaners, spray equipment) • **Measuring instruments:** inside/ outside micrometers, vernier calipers, dial gauges, depth gauges, steel rulers, T-squares, flat edges, calipers, dividers and protractors • **PPE:** Gloves, Safety shoes, goggles, ear plugs, boiler suits • **Workshop Safety**: Fire Extinguishers, First aid kit, safety ventilation equipment • **Cleaning agents:** de-waxing, detergents, degreasers, special purpose agents

Sr. No.	Module	Key Learning Outcomes	Equipment Required
4	**Plan and organize work to meet expected outcomes** **Theory Duration** (hh:mm) 15:00 **Practical Duration** (hh:mm) 20:00 **Corresponding NOS Code** ASC/N0001	• List the activities for completing a job within the given time, quality and standards • Identify and use resources efficiently and effectively • Follow organizational policies and procedures for planning and organizing work • Manage his/her time effectively at work • Demonstrate best practices to keep workplace organized and neat	Case studies
5	**Work effectively in a team** **Theory Duration** (hh:mm) 15:00 **Practical Duration** (hh:mm) 20:00 **Corresponding NOS Code** ASC/N0002	• Demonstrate effective ways of interaction and communication at work place • Describe all forms of verbal and non-verbal methods to communication • Determine etiquettes need to follow at work. • Determine importance of helping colleagues with problems, in order to meet quality and time standards as a team • Demonstrate appropriate usage of resources and material at workplace.	Case studies
6	**Maintain a healthy, safe and secure working environment** **Theory Duration** (hh:mm) 15:00 **Practical Duration**	• Identify various types of hazards at workplace • List activities to be taken to maintain safe and secured workplace • Demonstrate best practices to remove potential hazards at the workplace and prevent accidents • Describe appropriate strategies to deal with emergencies and accidents such as	Fire extinguisher, first aid kit and disposal of hazardous items and parts to provide an overview

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	(hh:mm) 20:00 **Corresponding NOS Code** ASC/N0003	fires and natural calamities at the workplace. • Demonstrate usage of fire-fighting equipment available at work place	
	Total Duration **Theory Duration** (hh:mm) 140:00 **Practical Duration** (hh:mm) 260:00	• Basic tool box • **Power tools and machines:** power grinders, hydraulic pressure machines, alignment machines, drills, drill bits, bolts, nuts and washers, air compressor, lines, air guns air compressor, lines, air guns • **Cutting tools:** metal-cutting guns, air grinders, hot-air welding guns, air hoses • **Hand tools:** pick hammers and punches, caulking guns, adhesive brushes, and mallets • **Holding tools**: various clamps, holding jigs, relevant special equipment, jacks, stands, lifting equipment • Special equipment (pressure washers, steam cleaners, spray equipment) • **Measuring instruments:** inside/ outside micrometers, vernier calipers, dial gauges, depth gauges, steel rulers, T-squares, flat edges, calipers, dividers and protractors • **PPE:** Gloves, Safety shoes, goggles, ear plugs, boiler suits • **Workshop Safety**: Fire Extinguishers, First aid kit, safety ventilation equipment • **Cleaning agents:** de-waxing, detergents, degreasers, special purpose agents	

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

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

Trainer Prerequisites for Job role: "Auto Body Repair Technician Level 4" mapped to Qualification Pack: "ASC/Q1405, 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/Q1405, 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 have sharp diagnostic abilities for identifying reasons of problems in vehicles and troubleshoot. • Should be hands-on with servicing 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: "Auto Body Repair Technician Level 4" mapped to QP: ASC/Q1405, 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 3 years of experience in Automotive Industry for ITI ▪ Minimum 2 years of experience in Automotive Industry for Diploma/ Engineer (mechanical engineering) ▪ Working experience on latest tools and equipment used for vehicle servicing

Annexure: Assessment Criteria

Assessment Criteria	
Job Role	Auto Body Repair Technician Level 4
Qualification Pack	ASC/Q1405, 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%)

Assessment Outcomes	Assessment Criteria for Outcomes	Total Marks	Out Of	Theory	Skills Practical
ASC/N1412 Repair and replace vehicle body and chassis components	PC1. assess the overall damage to vehicle body and chassis components and identify the need for repair or replacement of various body or chassis components	200	8	2	6
	PC2. read specifications or confer with customer/ Service Advisor		8	2	6

	or Body Shop Incharge to determine the desired custom modifications for altering the appearance of vehicles				
	PC3. select, calibrate and use the appropriate tools and equipment for the body component/ chassis repair in the vehicle.		8	2	6
	PC4. correctly realign the panels and components as per their original position.		8	2	6
	PC5. remove upholstery, accessories, electrical window and seat operating equipment, and trim to gain access to vehicle bodies and fenders		8	2	6
	PC6. repair: • body panels • minor structural damage • major welded panels • body components using lead wiping • major sectional repair • laminated glass • chassis/ frame and associated components		16	6	10
	PC7. remove and replace (with assistance of Senior Technicians/ Aggregate Specialists or Electrician if required): • vehicle body panels, panel sections and ancillary fittings • protector mouldings, transfers and decals • mechanical units/assemblies • electrical/electronic units/assemblies		16	6	10
	PC8. carry out: • vehicle body and underframe alignment • vehicle measurement • buffing and burnishing		16	6	10

	• trimming of vehicle components				
	PC9. select and apply trim/fabric materials and adhesives		16	6	10
	PC10. carry out minor sewing and trimming repairs and alterations		16	6	10
	PC11. remove and install: • windscreens • laminated glass • fixed and movable body glass • windows / sunroof installation (in case required)		8	2	6
	PC12. fit and weld replacement parts into place, using wrenches and welding equipment, and grind down welds to smooth them, using power grinders and other tools		8	2	6
	PC13. chain or clamp frames and sections to alignment machines that use hydraulic pressure to align damaged components		8	2	6
	PC14. remove damaged sections of vehicles using metal-cutting guns, air grinders and wrenches, and install replacement parts using wrenches or welding equipment		8	2	6
	PC15. position dolly blocks against surfaces of dented areas and beat opposite surfaces to remove dents, using hammers		8	2	6
	PC16. mix polyester resins and hardeners to restore damaged areas		5	1	4
	PC17. apply heat to plastic panels, using hot-air welding guns or immersion in hot water, and press the softened panels back into shape by hand		6	2	4
	PC18. fit and secure windows, vinyl roofs, and metal trim to vehicle		6	2	4

	bodies, using caulking guns, adhesive brushes, and mallets				
	PC19. fill small dents that cannot be worked out with plastic or solder		5	1	4
	PC20. remove small pits and dimples in body metal using pick hammers and punches		5	1	4
	PC21. prevent the other components, units and panels on the vehicle from getting damaged		5	1	4
	PC22. inspect repaired vehicles for proper functioning, completion of work, dimensional accuracy, and test drive vehicles to ensure proper alignment and handling		4	1	3
	PC23. ensure that trainings organized by the OEM from time-to-time are attended and knowledge levels are upgraded (esp. in case of newly launched products, product refreshes)		4	1	3
		Total	**200**	**60**	**140**
ASC/N 1413 Carry out repairs for metal corrosion on structural panels	PC1. Assess the overall damage to vehicle body and chassis components and identify the need for repair of various body or chassis components as a result of vehicle metal corrosion	75	8	2	6
	PC2. select and use the tools and equipment required to remove and fit components		8	2	6
	PC3. check the structural components with the help of corrosion assessment tool		11	3	8
	PC4. replace the protective coatings, sound deadener pads, sealers, and foams and perform anti-corrosion procedures		11	3	8

	PC5. mix polyester resins and hardeners to restore damaged areas		8	2	6
	PC6. refit the parts removed/ dismantled to carry out repair		8	2	6
	PC7. prevent the other components, units and panels on the vehicle from getting damaged		8	2	6
	PC8. inspect repaired vehicles for proper functioning, completion of work and dimensional accuracy		8	2	6
	PC9. ensure that trainings organized by the OEM from time-to-time are attended and knowledge levels are upgraded (esp. in case of newly launched products, product refreshes)		8	2	3
		Total	**75**	**20**	**55**
ASC/N 0001 Plan & organize work to meet expected outcome	PC1. Keep immediate work area clean and tidy	75	7	2	5
	PC2. Treat confidential information as per the organisation's guidelines		7	2	5
	PC3. Work in line with organisation's policies and procedures		8	3	5
	PC4. Work within the limits of job role		8	3	5
	PC5. Obtain guidance from appropriate people, where necessary		8	3	5
	PC6. Ensure work meets the agreed requirements		7	2	5
	PC7. Establish and agree on work requirements with appropriate people		9	3	6
	PC8. Manage time, materials and cost effectively		9	3	6
	PC9. Use resources in a responsible manner		12	4	8
		Total	**75**	**25**	**50**

ASC/N 0002 Work effectively in a team	PC1. Maintain clear communication with colleagues (by all means including face-to-face, telephonic as well as written)	75	9	3	6
	PC2. Work with colleagues to integrate work		9	3	6
	PC3. Pass on information to colleagues in line with organisational requirements both through verbal as well as non-verbal means		9	3	6
	PC4. Work in ways that show respect for colleagues		9	3	6
	PC5. Carry out commitments made to colleagues		12	4	8
	PC6. Let colleagues know in good time if cannot carry out commitments, explaining the reasons		9	3	6
	PC7. Identify problems in working with colleagues and take the initiative to solve these problems		9	3	6
	PC8. Follow the organisation's policies and procedures for working with colleagues		9	3	6
		Total	**75**	**25**	**50**
ASC/N 0003 Maintain safe, healthy environment friendly workplace	PC1. Comply with organisation's current health, safety and security policies and procedures	75	10	2	7
	PC2. Report any identified breaches in health, safety, and security policies and procedures to the designated person		10	2	7
	PC3. Coordinate with other resources at the workplace to achieve the healthy, safe and secure environment for all incorporating all government norms esp. for emergency situations like fires, earthquakes etc.		10	3	7

	PC4. Identify and correct any hazards like illness, accidents, fires or any other natural calamity safely and within the limits of individual's authority		11	3	8
	PC5. Report any hazards outside the individual's authority to the relevant person in line with organisational procedures and warn other people who may be affected		10	3	7
	PC6. Follow organisation's emergency procedures for accidents, fires or any other natural calamity		10	3	7
	PC7. Identify and recommend opportunities for improving health, safety, and security to the designated person		9	2	7
	PC8. Complete all health and safety records are updates and procedures well defined		9	2	7
		Total	**75**	**20**	**55**
	Grand Total		**400**	**150**	**350**
	Percentage Weightage:			37.5%	62.5%
	Minimum Pass % to qualify (aggregate):			70%	