

Model Curriculum

Auto Service Technician (Two and Three Wheelers)

SECTOR: AUTOMOTIVE
SUB-SECTOR: AUTOMOTIVE VEHICLE SERVICE
OCCUPATION: TECHNICAL SERVICE & REPAIR
REF. ID: ASC/Q1411, VERSION 1.1
NSQF LEVEL: 4



Certificate

CURRICULUM COMPLIANCE TO QUALIFICATION PACK – NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the

AUTOMOTIVE SKILLS DEVELOPMENT COUNCIL

for the

MODEL CURRICULUM

Complying to National Occupational Standards of
Job Role/ Qualification Pack: '**Auto Service Technician (Two and Three Wheelers)**'
QP No. '**ASC/Q1411 NSQF Level 4**'

Date of Issuance: **8th January, 2016**

Valid up to: **7th January, 2017***

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


Authorised Signatory
(Automotive Skills Development Council)

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Auto Service Technician (Two and Three Wheelers)

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a “Auto Service Technician (Two and Three Wheelers)”, in the “Automotive” Sector/Industry and aims at building the following key competencies amongst the learner

Program Name	Auto Service Technician (Two And Three Wheelers)		
Qualification Pack Name & Reference ID.	Auto Service Technician (Two and Three Wheelers) ASC/Q1411		
Version No.	1.1	Version Update Date	10-06-13
Pre-requisites to Training	Preferably Class X		
Training Outcomes	<p>After completing this programme, participants will be able to:</p> <ul style="list-style-type: none"> • carryout routine servicing of two/ three wheeler including various aggregates (scheduled, free and paid maintenance) • carry out maintenance activities of the two/ three wheeler vehicle (including oil, lubricant, coolant change and greasing) • carry out minor service and repair of two/ three wheeler vehicle (including mechanical and electrical aggregates) • Plan and organise work requirements including various activities, deliverables or work output required in the given time • Maintain set quality standards • Use resources in a responsible manner (both material / equipment and manpower) • Interact & communicate effectively with colleagues including member in the own group as well as other groups • Monitor the working environment and make sure it meets requirements for health, safety and security. 		

This course encompasses 4 out of 4 National Occupational Standards (NOS) of “Auto Service Technician (Two and Three Wheelers)” Qualification Pack issued by “SSC: Automotive Skills Development Council”.

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1.	<p>Introduction</p> <p>Theory Duration (hh:mm) 08:00</p> <p>Practical Duration (hh:mm) 00:00</p> <p>Corresponding NOS Code Bridge Module</p>	<ul style="list-style-type: none"> • General Discipline in the class room • General Safety Rules • Introduction to Automotive Industry • Familiarization about various auto manufacturers • Familiarization of terms associated with the sector • Brief outline about the course • Job Opportunities for an Auto Service Technician • Career growth path for an Auto Service Technician 	Nil
2.	<p>Maintain a healthy, safe and secure working environment</p> <p>Theory Duration (hh:mm) 10:00</p> <p>Practical Duration (hh:mm) 20:00</p> <p>Corresponding NOS Code ASC/ N 0003</p>	<ul style="list-style-type: none"> • comply with organisation’s current health, safety and security policies and procedures • report any identified breaches in health, safety, and security policies and procedures to the designated person • 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. • identify and correct any hazards like illness, accidents, fires or any other natural calamity safely and within the limits of individual’s authority • 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 • follow organisation’s emergency procedures for accidents, fires or any other natural calamity • identify and recommend opportunities for improving health, safety, and security to the designated person • complete all health and safety records are updates and procedures well defined 	<ul style="list-style-type: none"> • Personal Protection Equipment: Gloves, Safety Shoes, goggles, ear plugs, boiler suit • Workshop Safety: Fire extinguishers • First Aid • Safety signs • SOP Charts on safety norms and drills • Charts of dos and Don’ts in work area.
3.	<p>Assemblies and sub-assemblies in 2 wheeler and 3 wheeler Automobile and</p>	<ul style="list-style-type: none"> • List and Identify various systems and parts of a 2 wheeler and a 3 wheeler 	<ul style="list-style-type: none"> • Cut sections, Aggregates, Assemblies/ sub-assemblies and working models : <ul style="list-style-type: none"> - engine and fuel system (diesel,

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	<p>their basic functioning</p> <p>Theory Duration (hh:mm) 15:00</p> <p>Practical Duration (hh:mm) 20:00</p> <p>Corresponding NOS Code ASC/ N 1420</p>	<ul style="list-style-type: none"> Explain the functioning of various systems and parts of a 2 wheeler and 3 wheeler 	<p>petrol, electrical, gas etc.)</p> <ul style="list-style-type: none"> radiator emission and exhaust system clutch assembly transmission systems (manual, automatic etc.) hydraulic and pneumatic system disc & drum brakes system drive-train assembly steering system suspension system tyres and wheel alignment cooling system electrical, ignition, electronic and air-conditioning system etc. <ul style="list-style-type: none"> Teaching Aids: Charts, CBTs, Videos, White board Markers, White board / Flip charts.
4.	<p>Introduction to workshop tools and equipment and their usage</p> <p>Theory Duration (hh:mm) 15:00</p> <p>Practical Duration (hh:mm) 25:00</p> <p>Corresponding NOS Code ASC/ N 1420</p>	<ul style="list-style-type: none"> Identify all tools and equipment in a basic servicing toolkit Demonstrate the usage of each of the tool and equipment Follow standard operating procedures for using workshop tools and equipment for service and minor aggregate repairs in the two/ three wheeler vehicle 	<ul style="list-style-type: none"> Basic Tool Box Workshop tool/equipment: drain pan, oil can, jack hydraulic, bench vice, ramp, pneumatic tool, air compressor, special maintenance tools, bins/ racks, trolley, equipment stands, etc. Other tools: hand tools, power tools, lifting and jacking equipment, tensioning equipment, brake roller tester, chassis dynamometer, suspension activation, security activator etc. Teaching Aids: Charts, CBTs, Videos, White board Markers, White board / Flip charts.
5.	<p>Ideal calibrations and settings of 2 & 3 wheelers</p> <p>Theory Duration (hh:mm) 10:00</p> <p>Practical Duration (hh:mm) 15:00</p> <p>Corresponding NOS Code</p>	<ul style="list-style-type: none"> Calibrate, align and adjust settings, alignment, pressures, tension, speeds and levels relevant to: <ul style="list-style-type: none"> engine and aggregates transmission system chassis electrical and electronic components Scooter (two stroke engine) Scooter (four stroke engine) Motor cycle (two stroke engine) Motor cycle (four stroke engine) Auto Rickshaw (three wheeler) E-Rickshaw (three wheeler) 	<ul style="list-style-type: none"> Scooter Motor Cycle Auto-rickshaw E-Rickshaw pressure indicators: fuel pressure testers, manifold gauge sets, oil pressure gauges, tire pressure gauges etc. measuring equipment: vernier calipers, micrometre, feeler gauges, multi-metre, flow metre, temp gauge, dial gauge etc. Teaching Aids: Charts, CBTs,

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	ASC/ N 1420	<ul style="list-style-type: none"> - Disc & drum brakes system - other components (including to valves, ignition, fuel and emissions, transmission, lights, tyres, steering and body fittings) 	Videos, White board Markers, White board / Flip charts.
6.	<p>Carry out routine servicing and minor repairs of aggregates of two and three wheelers</p> <p>Theory Duration (hh:mm) 45:00</p> <p>Practical Duration (hh:mm) 115:00</p> <p>Corresponding NOS Code ASC/ N 1420</p>	<ul style="list-style-type: none"> • Understand the auto component manufacturer specifications related to the various components/ aggregates in the two/ three wheeler vehicle • Conduct test drives to assess need for repairs, calibration or any other adjustments in the electrical/ mechanical aggregates in the two/ three wheeler vehicle • Review the job card and understand work to be carried out • Ensure OEM recommended procedure and checklist is followed for routine servicing in case of non-routine service or repair, confirm tasks to be carried out with superior • Ensure that for routine maintenance and service, the correct spare parts and appropriate grade of lubricants, coolant, oils and grease required have been obtained • Ensure all dismantled components (including mechanical and electrical aggregates) are cleaned and conditioned prior to reassembly • Identify and change components requiring change due to continuous wear and tear including: <ul style="list-style-type: none"> - oil and air filters - belts - wiper blades - brake linings and pads - drive • Ensure disposal of materials (including waste oil, scrap of failed parts/ aggregates) in accordance with the organisation's policies • Understand the various precautions to be taken to avoid damage to the vehicle and its components while working on other aggregates • Record all service and repairs carried out and ensure completeness of tasks assigned before releasing vehicle for the next procedure 	<ul style="list-style-type: none"> • Serviceable training Vehicle: 2 wheeler and 3 wheeler • pressure indicators: fuel pressure testers, manifold gauge sets, oil pressure gauges, tire pressure gauges etc. • pullers: ball joint separators, bearing pullers, gear puller tools, slide hammers etc. • specialty wrenches: alignment wrenches, chain wrenches, locking wrenches, lug wrenches etc. • trim or moulding tools: carbon scrapers, gasket scrapers, scrapers, spoons etc. • measuring equipment: vernier calipers, micrometre, feeler gauges, multi-metre, flow metre, temp gauge, dial gauge etc. • other tools: hand tools, power tools, lifting and jacking equipment, tensioning equipment, brake roller tester, chassis dynamometer, suspension activation, security activator etc. • tools for other tasks such as cleaning of vehicles, tools, equipment and workshop • Personal Protection Equipment: Gloves, Safety Shoes, goggles, ear plugs, boiler suit • Workshop Safety: Fire extinguishers • First Aid • Consumable: cotton waste, petrol/diesel, lubricant, grease, storage containers, air filters, oil filters, spark plugs, etc • Vehicle service manuals, vehicle hand book, job card, work order, completion material requests,

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> • Ensure all workshop tools, equipment and workstations are adequately maintained by carrying out scheduled checks, calibration and timely repairs where necessary • Ensure any malfunctions observed in tools and equipment are reported to the concerned persons • Ensure any other repair requirements observed in the other components/ aggregates systems (like engine, gear box etc.) while repairing/ overhauling of braking systems are reported to supervisor/ service advisor for further inspection by other specialists • Able to measure/ inspect the machining or any other repair done from an outside source/ local machining garages • Utilise any computer-based applications relevant to service and repairs • 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) 	<p>Technical reference books.</p> <ul style="list-style-type: none"> • Teaching Aids: Charts, CBTs, Videos, White board Markers, White board / Flip charts.
7.	<p>Plan and organise work to meet expected outcomes</p> <p>Theory Duration (hh:mm) 20:00</p> <p>Practical Duration (hh:mm) 45:00</p> <p>Corresponding NOS Code ASC/ N 0001</p>	<ul style="list-style-type: none"> • Explain and follow 5-S principles in work area • keep immediate work area clean and tidy • treat confidential information as per the organisation's guidelines • Work in line with organisation's policies and procedures • Work within the limits of job role • Obtain guidance from appropriate people, where necessary • Ensure work meets the agreed requirements • Establish and agree on work requirements with appropriate people • Manage time, materials and cost effectively • Use resources in a responsible manner 	<ul style="list-style-type: none"> • Cleaning equipment and solutions • Case Study - Audio/video • Training charts
8.	<p>Work effectively in a team</p>	<ul style="list-style-type: none"> • Maintain clear communication with colleagues (by all means including face-to-face, telephonic as well as written) 	<ul style="list-style-type: none"> • Case Study • Role Play

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	<p>Theory Duration (hh:mm) 20:00</p> <p>Practical Duration (hh:mm) 45:00</p> <p>Corresponding NOS Code ASC/ N 0002</p>	<ul style="list-style-type: none"> • Work with colleagues to integrate work • Pass on information to colleagues in line with organisational requirements both through verbal as well as non-verbal means • Work in ways that show respect for colleagues • Carry out commitments made to colleagues • Let colleagues know in good time if cannot carry out commitments, explaining the reasons • Identify problems in working with colleagues and take the initiative to solve these problems • Follow the organisation's policies and procedures for working with colleagues 	
9.	<p>Functional English Language</p> <p>Theory Duration (hh:mm) 16:00</p> <p>Practical Duration (hh:mm) 16:00</p> <p>Corresponding NOS Code ASC/ N 1420, ASC/ N 0001, ASC/ N 0002, ASC/ N 0003</p>	<ul style="list-style-type: none"> • Use elementary level English. • Understand and use proper grammar 	<ul style="list-style-type: none"> • Audio/video on English course • Reference books English • Work books for English
10.	<p>Soft Skills</p> <p>Theory Duration (hh:mm) 08:00</p> <p>Practical Duration (hh:mm) 16:00</p> <p>Corresponding NOS Code ASC/ N 1420, ASC/ N 0001, ASC/ N 0002, ASC/ N 0003</p>	<ul style="list-style-type: none"> • Deal with colleagues, supervisor and customer with confidence • Demonstrate etiquettes while dealing with team members and customer • Greet team members, supervisor and customer • Demonstrate efficient problem solving skills • Apply balanced judgement to different situations • Analyze Data and Activities 	<ul style="list-style-type: none"> • Case Study

Sr. No.	Module	Key Learning Outcomes	Equipment Required
11.	<p>Basic Computing</p> <p>Theory Duration (hh:mm) 08:00</p> <p>Practical Duration (hh:mm) 24:00</p> <p>Corresponding NOS Code ASC/ N 1420</p>	<ul style="list-style-type: none"> Operate a computer and other peripherals Retrieve, create, modify and delete data using computer Create documents using MS Office (word, excel) Send and receive emails Browse Internet 	<ul style="list-style-type: none"> CBTs on working on computer Computer system UPS Internet connection
12.	<p>OJT</p> <p>Theory Duration (hh:mm) 00:00</p> <p>Practical Duration (hh:mm) 164:00</p> <p>Corresponding NOS Code ASC/ N 1420, ASC/ N 0001, ASC/ N 0002, ASC/ N 0003</p>	<ul style="list-style-type: none"> Practical training at selected organization/workshop 	
	<p>Total Duration</p> <p>Theory Duration 175</p> <p>Practical Duration 505</p>	<p>Unique Equipment Required:</p> <ul style="list-style-type: none"> Basic Tool Box Workshop tool/equipment: drain pan, oil can, jack hydraulic, bench vice, ramp, pneumatic tool, air compressor, special maintenance tools, bins/ racks, trolley, equipment stands, etc. Serviceable training Vehicle: 2 wheeler and 3 wheeler Aggregates, Assemblies/ sub-assemblies, Cut sections and Working Models: <ul style="list-style-type: none"> engines and fuel system (diesel, petrol, electrical, gas etc.) radiator emission and exhaust system clutch assembly transmission systems (manual, automatic etc.) hydraulic and pneumatic system disc & drum brakes system drive-train assembly steering system suspension system 	

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> • tyres and wheel alignment • cooling system • electrical, ignition, electronic and air-conditioning system etc. • Pressure indicators: fuel pressure testers, manifold gauge sets, oil pressure gauges, tire pressure gauges etc. • Pullers: ball joint separators, bearing pullers, gear puller tools, slide hammers etc. • Specialty wrenches: alignment wrenches, chain wrenches, locking wrenches, lug wrenches etc. • Trim or moulding tools: carbon scrapers, gasket scrapers, scrapers, spoons etc. • Measuring equipment: Vernier, calipers, micrometre, feeler gauges, multi-metre, flow metre, temp gauge, dial gauge etc. • Other tools: hand tools, power tools, lifting and jacking equipment, tensioning equipment, brake roller tester, chassis dynamometer, suspension activation, security activator etc. • Tools for other tasks such as cleaning of vehicles, tools, equipment and workshop • Personal Protection Equipment: Gloves, Safety Shoes, goggles, ear plugs, boiler suit • Workshop Safety: Fire extinguishers • First Aid • Consumable: cotton waste, petrol/diesel, lubricant, grease, storage containers, air filters, oil filters, spark plugs, etc • Vehicle service manuals, vehicle hand book, job card, work order, completion material requests, Technical reference books. • Consumable: cotton waste, petro;/diesel, coolant, lubricant, grease, storage containers, air filters, oil filters, spark plugs, glow plugs etc • Samples: seals, sealants, fittings, gaskets, joints, fasteners, etc • worn out/ defective/ spurious samples: seal, gaskets, clutch plate, brake shoes, brake pads, spark plug, oil filter, air cleaner etc. • Vehicle service manuals, vehicle hand book, job role, work order, Technical reference books. • Teaching Aids: Charts, CBTs, and Videos. • Cleaning equipment and solutions • SOP Charts on safety norms and drills • Charts of dos and Don'ts in work area. • Audio/video on English course • Reference books English • Work books for English • Case Study for Soft Skills • CBTs on working on computer • Computer system 	

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none">• UPS• Internet connection	

Grand Total Course Duration: 680 Hours 0 Minutes *

*** These are only notional number of hours. The training must achieve competency outcomes as define by the QP/NOS**

(This syllabus/ curriculum has been approved by Automotive Skills Development Council(name of relevant Sector Skill Council or NSDC designated authority)

Trainer Prerequisites for Job role: “Auto Service Technician (Two and Three Wheelers)” mapped to Qualification Pack: “ASC/Q1411 Version 1.1”

Sr. No.	Area	Details
1	Job Description	To deliver accredited training service, mapping to the curriculum detailed above, in accordance with the Qualification Pack “ASC/Q1411, Version 1.1”.
2	Personal Attributes	<ul style="list-style-type: none"> ▪ 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-organised 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 experiential training.
3	Minimum Educational Qualifications	Engineer/ Diploma/ ITI in mechanical engineering from a recognized institute
4a	Domain Certification	Certified for Job Role: “ <u>Trainer Service Technician</u> ” mapped to QP: <u>ASC/Q1401, ASC/QQ1402, ASC/Q 1408, ASC/Q1414, ASC/Q 1415, ASC/Q1416, ASC/Q 1101</u> ”. Minimum accepted score-75%, as per ASDC guidelines.
4b	Platform Certification	Recommended that the Trainer is certified for the Job Role: “Trainer”, mapped to the Qualification Pack: “SSC/Q1402”. Minimum accepted score-75%, as per ASDC guidelines.
5	Experience	<ul style="list-style-type: none"> ▪ Minimum 10 years of experience in Automotive Service Industry ▪ Experience of working on latest technology ▪ Minimum of five years of experience as trainer with OEMs ▪ Age: Preferably, not over 35-45 years old; ex-service person and retired auto industry trainers may also apply

Annexure: Assessment Criteria

Assessment Criteria for Auto Service Technician (Two and Three Wheelers)	
Job Role	Auto Service Technician (Two and Three Wheelers)
Qualification Pack	ASC/Q1411, Version 1.1
Sector Skill Council	Automotive Skills Development Council

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: <ol style="list-style-type: none"> i. Theory/Knowledge test ii. Practical demonstration test iii. Face to Face Viva
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. <ul style="list-style-type: none"> - 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 %):75%

Sr. No.	NOS No.	NOS Name	Total Marks	Marks Allocation: Skills	Marks Allocation: Knowledge
1	ASC/N 1420	Carry out routine servicing & minor repairs of two / three wheelers	200	135	65
2	ASC/N 0001	Plan & organize work to meet expected outcome	100	70	30
3	ASC/N 0002	Work effectively in a team	95	65	30
4	ASC/N 0003	Maintain a healthy, safe and secure working environment	105	70	35
Total:			500	340	160
Percentage Weightage:				68%	32%
Minimum Pass% to qualify:				75%	75%



Automotive Skills Development Council

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