

Competency Based Curriculum Class 9th to 12th (NSQF I to IV)

Course: Automobile Service Technician
(For job roles of mechanic, car washer, autoelectrician, etc.)



PSS Central Institute of Vocational Education

(a constituent unit of NCERT, an autonomous organization under Ministry of Human Resource Development, Government of India)

Shyamla Hills, Bhopal, MP, India

Competency Based Curriculum

Class 9th to 12th

(NSQF I to IV)

Course: Automobile Service Technician

(For job roles of mechanic, car washer, autoelectrician, etc.)

Developed by:
Dr. Saurabh Prakash
Professor & Head,
Department of Engineering and Technology



PSS Central Institute of Vocational Education

(a constituent unit of NCERT, an autonomous organization under Ministry of Human Resource Development, Government of India)

Shyamla Hills, Bhopal, MP, India

CURRICULUM –Automobile Service Technician (Mechanic, car washer, auto electrician etc) for Class 9th to 12th

January 2015

Publication no: 26-4-17-3H

No of copies: 300

© PSS Central Institute of Vocational Education 2015

ALL RIGHTS RESERVED

- No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form (print or non-print) or by any means, electronically, mechanical, photocopying, recording or otherwise without the prior permission of the Publishers.
- This book is supplied subject to condition that it shall not by way of trade, be lent, resold, hired out in any form of binding or cover other than that in which it is published or otherwise disposed of without the publisher's consent.
- Not priced publication , only for free circulation and distribution

Production Assistant

Shri A.M. Vinod Kumar

Laser Typed by

Mr. Akhilesh Kashiv

Preface

Ministry of Human Resource Development, Government of India developed the National Skill Qualification Framework (NSQF) to introduce vocational courses from class 9th onwards. The NSQF organizes qualifications according to a series of levels of knowledge and skills. These levels are defined in terms of learning outcomes i.e., the competencies (knowledge, skills and attitude) which the learners must possess regardless of whether they were acquired through formal, non-formal or informal education and training system. Qualifications are made up of occupational standards for specific areas of learning units or unit of competency. Units of competency are the specification of knowledge and skill and the application of that knowledge and skill to the standard of performance expected in the workplace. The unit of competency or National Occupation Standards comprising generic and technical competencies an employee should possess are laid down by the Sector Skill Council of the respective economic or social sector.

Competency is defined in terms of what a person is required to do (performance), under what conditions it is done (conditions) and how well it is to be done (standards). It can be broadly categorized into foundational, practical and reflexive competencies. Generic competencies are considered essential for a person to participate effectively in the workforce, whereas technical competencies are an individual's knowledge and expertise in the specific group task and its processes and its rules and regulations.

The competency based curriculum is broken down into coherent parts known as Units. Each unit is further broken down into knowledge and skills on the basis of which evidence is to be provided by the learner and the evaluation is to be done by the teacher or trainer.

PSSCIVE which is part of NCERT New Delhi is mandated by Government of India as a apex R&D Institute for Vocational Education. The institute has taken up development of Curriculum and courseware for class 9th to 12th to introduce vocational courses in Secondary and senior secondary schools in of the country.

Dr. R. B. Shivagunde
Joint Director and Head
PSS Central Institute of Vocational Education Bhopal

About the Course

The present material consists of curriculum related to Level L-1 to L-4 for the Automobile service sector. This will fulfill the needs of the students willing to learn activities relating to the Automobile Service Sector. Any student/ entrepreneur willing to start an Automobile Service Centre can acquire the desired competencies with the help of this curriculum. Automobile or Automotive Engineering has gained recognition and importance ever since motor vehicles capable for transporting passengers has been in vogue. Now due to the rapid growth of auto component manufacturers and automobile industries, there is a great demand for Automobile technicians. Automobile Engineering alias Automotive Engineering or Vehicle Engineering is one of the most challenging careers in the field of engineering with a wide scope. This curriculum deals with the concept of testing, repairing and servicing automobiles such as cars, jeep, trucks, etc. For the perfect blend of manufacturing and designing automobiles, Automobile Engineering uses the features of different elements of Engineering such as mechanical, electrical, electronic, software and safety engineering. To become a proficient automobile technician, specialized training is essential and it is a profession which requires a lot of hard work, dedication, determination and commitment. It involves understanding the mechanism of vehicle chassis, internal combustion engine, electrical systems, motor transport affairs, workshop technology. PSSCIVE has taken lead in development of curriculum and learning material for the Automobile Sector for all level in collaboration with the Automotive Skill Development Council (ASDC).

.After successfully completing class 9th, 10th, 11th and 12th students will be able to perform job roles mentioned in the course and pass out will be able to pursue higher level diploma degree a post graduate in Automobile Technology field.

2. Objectives of the course

- Prepare student about various activities related to automobile servicing of a four wheeler
- Orient students about various methods and technique used in automobile servicing

3. Course structure

This subject will be taught like other subject in school as per designed time table.

4. Classroom activities

Class room activity will be conducted as per standard procedure. Activity given in curriculum will be implemented by teacher.

5. Practical activities

Practical activity will be conducted as per standard procedure. Activity given in curriculum will be implemented by the teacher.

6. Certification

Certification will be awarded by school board of the respective state.

Contents

1. About the Course
2. Objectives of the course
3. Course structure
4. Classroom activities
5. Practical activities
6. Certification
7. Units
 - Level-I (Class 9th)**
 - AUTO-L1-01: History and Evolution of Automobiles
 - AUTO-L1-02: Various types of Automobiles
 - AUTO-L1-03: Major Systems & Components of an Automobile
 - AUTO-L1-04: Road Safety
 - AUTO-L1-05: Automobiles and our Environment
 - AUTO-L1-06: Introduction to Vehicle Maintenance & Servicing
 - AUTO-L1-07: Innovations & Developments in Automobiles
 - Level-II (Class 10th)**
 - AUTO-L2-01: Automobile and its components
 - AUTO-L2-02: Automobile Service Tools
 - AUTO-L2-03: Vehicle Servicing
 - AUTO-L2-04: Customer sales care
 - AUTO-L2-05: Innovation and Development
 - Level-III (Class 11th)**
 - AUTO-L3-01: Regular maintenance of an engine
 - AUTO-L3-02: Regular maintenance of Transmission system
 - AUTO-L3-03: Regular maintenance of Gear
 - AUTO-L3-04: Service of wheels
 - AUTO-L3-05: Regular maintenance of tubes and tyres
 - AUTO-L3-06: Regular Maintenance of Brakes
 - Level-IV (Class 12th)**
 - AUTO-L4-01: Service Manual
 - AUTO-L4-02: Inspection and Repairs of the Fasteners
 - AUTO-L4-03: Measuring Equipments
 - AUTO-L4-04: Suspension system
 - AUTO-L4-05: Serviceability, replacement or repair of engine components
 - AUTO-L4-06: Transmission system
 - AUTO-L4-07: Auto Electrical System
8. List of reference books and Instructional material
9. List of tools, equipment and materials
10. Teacher's qualifications
11. List of contributors

7. Units

Curriculum
Automobile Service Technician
AUTO-SRV L1-NQ

NSQF Level I - Class IX

Name of Module: Automobile Service Technician

Module Overview:

Student should be able to identify all types of vehicles and their applications, all major systems of a vehicle, Introduction to maintenance of vehicles. They will be introduced to various aspects of road safety and environmental issues.

Name and Code of Units

Unit Code	Unit Title	Total Hours
AUTOT-L1-01	History and Evolution of Automobiles	10
AUTO-L1-02	Various types of Automobiles	35
AUTO-L1-03	Major Systems and Components of an Automobile	60
AUTO-L1-04	Road Safety	30
AUTO-L1-05	Automobiles and our Environment	20
AUTO-L1-06	Introduction to Vehicle Maintenance and Servicing	30
AUTO-L1-07	Innovations and Developments In Automobiles	15
	On the Job Training	50
	Total	250

**List of Elements of unit AUTO-L1-01
History and Evolution of Automobile**

Element Code	History and Evolution of Automobiles	Duration (In Hours)
AUTO-L1-01-E1	Invention of the wheel	2
AUTO-L1-01-E2	Invention of the wheel cart and animal powered horse cart	2
AUTO-L1-01-E3	Invention of Automobile and Evolution	3
AUTO-L1-01-E4	Invention of Automobile and Evolution (Post World War II)	3
	Total duration In hours	10

**Details of Elements In unit AUTO-L1-01
History and Evolution of Automobile**

UNIT CODE	AUTO-L1-01	
DURATION	10 Hours	
UNIT OVERVIEW	Students will be able to relate the invention of wheel, wheel cart and animal powered horse cart	
ELEMENT AUTO-L1-01-E1	PERFORMANCE CRITERIA	KNOWLEDGE CRITERIA
Describe the Invention of wheel	Able to describe the Invention of wheel	Invention of wheel
ELEMENT AUTO-L1-01-E2	PERFORMANCE CRITERIA	KNOWLEDGE CRITERIA
Invention of wheel cart and animal powered horse cart	Able to describe the wheel cart	Invention of wheel cart and animal powered cart
	Able to explain use of horse power	Use of horse cart and horse power
ELEMENT AUTO-L1-01-E3	PERFORMANCE CRITERIA	KNOWLEDGE CRITERIA
Invention of Automobiles and Evolution till date	Able to describe Invention of Automobiles and Evolution till date	Invention of Automobiles and Evolution till date
ELEMENT AUTO-L1-01-E4	PERFORMANCE CRITERIA	KNOWLEDGE CRITERIA
Invention of automobile (Post world war II)	Able to describe Invention of Automobile and Evolution post World War II	Invention of automobile and Evaluation post World War II

List of Elements of unit AUTO-L1-02
Various types of Automobiles

Element Code	Various types of Automobiles	Duration (in Hours)
AUTO-L1-02-E1	Able to identify two and three wheelers	7
AUTO-L1-02-E2	Able to identify passenger and commercial vehicles	7
AUTO-L1-02-E3	Able to identify agricultural vehicles	7
AUTO-L1-02-E4	Able to identify construction equipment vehicles	7
AUTO-L1-02-E5	Able to identify special vehicles	7
	Total duration in hours	35

Detail of Elements in Unit AUTO-L1-02
Various types of Automobiles

UNIT CODE	AUTO-L1-02	
DURATION	35 Hours	
UNIT OVERVIEW	Student will be able to identify various types of Automobiles	
ELEMENT AUTO-L1-02-E1	PERFORMANCE CRITERIA	KNOWLEDGE CRITERIA
Able to identify Two Wheelers	Able to identify Two Wheelers used	Two Wheelers, make, model, specifications
	Drawing of Two Wheelers	Parts/Components of Two Wheelers
ELEMENT AUTO-L1-02-E2	PERFORMANCE CRITERIA	KNOWLEDGE CRITERIA
Able to identify Three Wheelers	Able to identify Three Wheelers used	Three wheelers, make, model, specifications
	Drawing of Three Wheelers	Parts/Components of three wheelers
ELEMENT AUTO-L1-02-E3	PERFORMANCE CRITERIA	KNOWLEDGE CRITERIA
Able to identify Passenger vehicle	Able to identify Passenger vehicles used	Passenger vehicle, make, model, specifications
	Drawing of Passenger vehicle	Parts/Components of passenger vehicles

ELEMENT AUTO-L1-02-E4	PERFORMANCE CRITERIA	KNOWLEDGE CRITERIA
Able to identify Commercial vehicle	Able to identify commercial vehicle used.	Commercial vehicle, make, model, specifications
	Drawing of commercial vehicle,	Parts/Components Commercial vehicles of
ELEMENT AUTO-L1-02-E5	PERFORMANCE CRITERIA	KNOWLEDGE CRITERIA
Able to identify Agricultural vehicle	Able to identify agricultural vehicle used.	Agricultural vehicle, make, model, specifications
	Drawing of agricultural vehicle	Parts/components of Agricultural vehicles
ELEMENT AUTO-L1-02-E6	PERFORMANCE CRITERIA	KNOWLEDGE CRITERIA
Able to identify Construction Equipment Vehicle	Able to identify construction Equipment Vehicle used.	Construction equipment vehicles, make, model, specifications
	Drawing of Construction Equipment Vehicles,	Parts/components of construction equipment vehicles
ELEMENT AUTO-L1-02-E7	PERFORMANCE CRITERIA	KNOWLEDGE CRITERIA
Able to identify Special Vehicles	Able to identify special Vehicles used.	Special vehicle, make, model, specifications
	Drawing of special Vehicles,	Parts/Components of special vehicles

**List of Elements of unit AUTO-L1-03
Major Systems & Components of an Automobile**

Sr.No	Elements	Duration (In Hours)
1.	Chassis Frame and Auto Body	5
2.	Engine, and its components	10
3.	Lubrication system	5
4.	Cooling system	2
5.	Fuel Supply	5
6.	Transmission system	5
7.	Front and rear axle, ,	2
8.	Steering system	2
9.	Suspension system	5

10.	Wheels and Tyre	2
11.	Brake	5
12.	Electrical & Electronic Systems	5
13.	Air Conditioning System	5
14.	Active and Passive Safety	2
	Total	60

Details of Elements of unit AUTO L1 03

Major Systems & Components of an Automobile

UNIT CODE	AUTO-L1-03	
DURATION	60 hours	
UNIT OVERVIEW	Student will be able to Major Systems & Components of an Automobile	
ELEMENT CODE	KNOWLEDGE CRITERIA	PERFORMANCE CRITERIA
ELEMENT AUTO-L1-02-E1	Use of Chassis Frame and Auto Body	Able to identify and describe the Importance of Chassis Frame and Auto Body Able to make a drawing of the Chassis Frame and Auto Body
ELEMENT AUTO-L1-02-E2	Use of Engine and Its components	Able to identify and describe the Importance of the Engine and Its components Able to make a drawing of the Engine and Its components.
ELEMENT AUTO-L1-02-E3	Use of Lubrication System	Able to identify and describe the Importance of the Lubrication and Its components Able to make a drawing of the Lubrication system and its components
ELEMENT AUTO-L1-02-E4	Use of Cooling System	Able to identify and describe the Importance Cooling System, Able to make a drawing of the Cooling System
ELEMENT AUTO-L1-03-E5	Use of Fuel Supply system	Able to identify and describe importance Fuel Supply System, Able to make a drawing of the Fuel Supply System,
ELEMENT AUTO-L1-03-E6	Use of Transmission System,	Able to identify, describe importance of Transmission System, Able to make a drawing of the Transmision System,
ELEMENT AUTO-L1-03-E7	Use of Front and Rear	Able to identify and describe the importance of Front and Rear Axle, Able to make a drawing of the Front and Rear Axle
ELEMENT AUTO-L1-03-E8	Use of Steering	Able to identify and describe the importance of steering,

		Able to make drawing of steering
ELEMENT AUTO-L1-03-E9	Use of Suspension System	Able to identify and describe importance of suspension system
		Able to make a drawing of the Suspension System
ELEMENT AUTO-L1-03-E10	Use of Wheels and Tyres	Able to identify and describe the importance Wheels and Tyres
		Able to make drawing of Wheels and Tyres
ELEMENT AUTO-L1-03-E6\11	Use of Brake	Able to identify and describe importance of Brake
		Able to make drawing of Brake
ELEMENT AUTO-L1-03-E12	Use of Electrical & electronic Systems	Able to identify and describe the importance of the Electrical & Electronic Systems
		Able to make a drawing of the Electrical & Electronic Systems.
ELEMENT AUTO-L1-03-E13	Use of Air Conditioning System	Able to identify and describe the importance of Air Conditioning System
		Able to make a drawing of Air Conditioning System,
ELEMENT AUTO-L1-03-E14	Use of Active and Passive Safety	Able to identify and describe importance of Active and Passive Safety
		Able to make a drawing of Active and Passive Safety

**List of Element of Unit AUTO-L1-04
Road Safety**

Element Code	Road safety	Duration (In Hours)
AUTO-L1-04-E1	Importance of road safety rules	5
AUTO-L1-04-E2	Safe and responsible driving	5
AUTO-L1-04-E3	Road Signs	5
AUTO-L1-04-E4	Driving rules and Registration of a vehicle	5
AUTO-L1-04-E5	Driving License	5
	Total Duration	25

**Details of Elements In Unit AUTO-L1-04
Road Safety**

UNIT CODE	AUTO-L1-04
DURATION	25 Hours

UNIT OVERVIEW	Students will be able to understand about road safety and rules adopted in regulation	
ELEMENT AUTO-L1-04-E1	PERFORMANCE CRITERIA	KNOWLEDGE CRITERIA
Importance of road safety rules	Able to list the safety rules to be followed.	Importance of safety rules and safe practices
	Able to use safe practices while driving.	
ELEMENT AUTO-L1-04-E2	PERFORMANCE CRITERIA	KNOWLEDGE CRITERIA
Safe and responsible driving	Able to list the safe and responsible driving procedures	Safe and responsible driving
ELEMENT AUTO-L1-04-E3	PERFORMANCE CRITERIA	KNOWLEDGE CRITERIA
Road Signs signals	Able to identify various road signs, traffic signals and describe the rules	Road Signs, Traffic signals and rules
	Able to make sketch of various road sign, traffic signals and describe the rules	
ELEMENT AUTO-L1-04-E4	PERFORMANCE CRITERIA	KNOWLEDGE CRITERIA
Driving rules and registration	Able to describe driving rules Able to fill forms for driving and registration	Driving rules and registration
ELEMENT AUTO-L1-04-E5	PERFORMANCE CRITERIA	KNOWLEDGE CRITERIA
Driving License	Able to describe different license forms	License rules
	Able to write license rules	
	Able to fill forms for license	

**List of Element of Unit AUTO-L1-05
Automobile and Environment**

Element Code	Automobile and Environment	Duration (in hours)
AUTO-L1-05-E1	Air pollution	5
AUTO-L1-05-E2	Auto Emissions and EU/ BS Standards	5
AUTO-L1-05-E3	PUC Certification	10
	Total Duration	20

**Detail of Elements in Unit AUTO-L1-05
Automobile and Environment**

UNIT CODE	AUTO-L1-05	
DURATION	25 Hours	
UNIT OVERVIEW	Students will be able to understand about Automobiles and Environment	
ELEMENT AUTO-L1-05-E1	PERFORMANCE CRITERIA	KNOWLEDGE CRITERIA
Air pollution	Able to list Air pollution norms	Air pollution and norms
	Able to observe Air Pollution and Automobiles	Air pollution and automobiles
ELEMENT AUTO-L1-05-E2	PERFORMANCE CRITERIA	KNOWLEDGE CRITERIA
Auto emissions and EU/ BS Standards	Able to identify various Standards like EU/ BS, PUC Certification	Auto emissions and EU/ BS Standards
	Able to make list of various standards	
ELEMENT AUTO-L1-05-E1	PERFORMANCE CRITERIA	KNOWLEDGE CRITERIA
PUC Certification	Able to describe about PUC Certification.	PUC Certification

Introduction to Vehicle Maintenance and Servicing

List of Elements of Unit AUTO-L1-06

Element Code	Name of Element	Duration (In Hours)
AUTO-L1-06-E1	Importance of Vehicle maintenance and servicing	10
AUTO-L1-06-E2	Tips to extend the Life of Vehicles	10
AUTO-L1-05-E3	Introduction to vehicle servicing procedure	10
	Total duration	30

Introduction to Vehicle Maintenance and Servicing

Detail of Elements In Unit AUTO-L1-06

UNIT CODE	AUTO-L1-06	
DURATION	30 Hours	
UNIT OVERVIEW	Student will be able to Introduce Vehicle Maintenance and Servicing	
ELEMENT AUTO-L1-06-E1	PERFORMANCE CRITERIA	KNOWLEDGE CRITERIA

Importance of Vehicle Maintenance and Servicing	Able to perform basic procedures for vehicle maintenance	Importance of Vehicle Maintenance and Servicing
	Able to describe vehicle maintenance	
ELEMENT AUTO-L1-06-E2	PERFORMANCE CRITERIA	KNOWLEDGE CRITERIA
Tips to extend the life of vehicles	Able to list tips to extend the life of Vehicles	Tips to extend the life of vehicles
	Able to check the tips	
ELEMENT AUTO-L1-06-E3	PERFORMANCE CRITERIA	KNOWLEDGE CRITERIA
Introduction to Vehicle Servicing procedure	Able to list procedures during vehicle servicing	Procedures during vehicle servicing

Innovation and Development
List of Elements of Unit AUTO-L1-07

Element Code	Innovation and Development	Duration (In hours)
AUTO-L1-07-E1	Innovation and Development	15
	Total Duration	15

Innovation and Development

Detail of Elements In Unit AUTO-L1-07

UNIT CODE	AUTO-L1-07	
DURATION	15 Hours	
UNIT OVERVIEW	Student will be able to understand about Innovation and Development in Automobiles	
ELEMENT AUTO-L1-07-E1	PERFORMANCE CRITERIA	KNOWLEDGE CRITERIA
Innovation and Development	Able to identify Innovation in Automobiles.	Importance of Innovation and development
	Able to understand about new developments	

Curriculum
Automobile Service Technician
AUTO-SRV L2

NSQF Level II - Class X

Name of Module: Automobile Service Technician

Module Overview:

Student should be able to know and understand all major systems of a automobile, handling of tools, Introduction to servicing of vehicles, customer sales care and Innovation and development aspects.

Name and Code of Units

Unit Code	Unit Title	Total Hours
AUTO-L2-01	Automobile and its components	80
AUTO-L2-02	Automobile Service Tools	40
AUTO-L2-03	Vehicle Servicing	30
AUTO-L2-04	Customer sales care	10
AUTO-L2-05	Innovation and Development	10
	On the job Training	50
	Total	250

List of Elements of unit AUTO-L2-01

Automobiles and its component

Element Code	Element	Duration (Hours)
AUTO-L2-01-E1	Chassis	7
AUTO-L2-01-E2	Body	7
AUTO-L2-01-E3	Engine	9
AUTO-L2-01-E4	Lubrication System	8
AUTO-L2-01-E5	Cooling System	7
AUTO-L2-01-E6	Fuel Supply system	8
AUTO-L2-01-E7	Transmission System	9
AUTO-L2-01-E8	Front axle	7
AUTO-L2-01-E9	Steering	7
AUTO-L2-01-E10	Rear axle	8
AUTO-L2-01-E11	Suspension System	9
AUTO-L2-01-E12	Wheel and Tyre	7
AUTO-L2-01-E13	Brake	7
	Total	100

Detail of Elements of unit AUTO-L2-01

Automobiles and its component

UNIT CODE	AUTO-L2-01	
DURATION	100 Hours	
UNIT OVERVIEW	Student will be able to know Automobile and Its Components	
Element Code	Performance Criteria	Knowledge Criteria
ELEMENT AUTO-L2-01-E1	Able to identify and describe Chassis	Chassis
	Able to understand details of Chassis	
ELEMENT AUTO-L2-01-E2	Able to identify and describe Body	Body and Use
	Able to understand details of body	
ELEMENT AUTO-L2-01-E3	Able to identify and describe Engine and Its type	Engine and its components

	Able to understand details of engine	
ELEMENT AUTO-L2-01-E4	Able to identify and describe Lubrication system	Lubrication System
	Able to understand details of Lubrication and its components	
ELEMENT AUTO-L2-01-E5	Able to identify and describe importance Cooling System	Cooling System
	Able to understand detail of Cooling System	
ELEMENT AUTO-L2-01-E6	Able to identify and describe Fuel Supply System	Fuel Supply system
	Able to understand Fuel Supply System	
ELEMENT AUTO-L2-01-E7	Able to identify and describe Importance of Transmission System	Transmission System
	Able to understand Transmission System	
ELEMENT AUTO-L2-01-E8	Able to identify and describe importance of Front Axle	Front axle
	Able to understand Front Axle	
ELEMENT AUTO-L2-01-E9	Able to identify and describe Importance of steering	Steering
	Able to understand steering	
ELEMENT AUTO-L2-01-E10	Able to identify and describe rear axle	Rear axle
	Able to understand rear axle	
ELEMENT AUTO-L2-01-E11	Able to identify and describe importance of suspension system	Suspension System
	Able to understand Suspension System	

ELEMENT AUTO-L2-01-E12	Able to identify and describe wheels and tyres	Wheels and Tyres
	Able to understand of Wheels and Tyres	
ELEMENT AUTO-L2-01-E13	Able to identify and describe of Brake	Brake
	Able to understand Brake system	

List of Elements of Unit AUTO-L2-02

Automobiles Service Tools

Element Code	Automobiles Service Tools	Duration(Hours)
AUTO-L2-02-E1	Hand Tools	8
AUTO-L2-02-E2	Measuring Tools	8
AUTO-L2-02-E3	Electrical Tools	8
AUTO-L2-02-E4	Special Tools	8
AUTO-L2-02-E5	Service Workshop machine	8
	Total	40

Detail of Elements In Unit AUTO-L2-02

Automobiles Service Tools

UNIT CODE	AUTO-L2-02	
DURATION	40Hours	
UNIT OVERVIEW	Student will be able to identify and handle of various types of tools	
ELEMENT AUTO-L2-02-E1	PERFORMANCE CRITERIA	KNOWLEDGE CRITERIA
Hand Tools	Able to identify hand tools used.	Hand tools
	Drawing of hand tools.	Parts/Components of hand tools
ELEMENT AUTO-L2-02-E2	PERFORMANCE CRITERIA	KNOWLEDGE CRITERIA
Measurement Tools	Able to identify measurement tools used.	Measurement tools make, model, specifications

	Drawing of measurement tools	Parts/Components of measurement tools
ELEMENT AUTO-L2-02-E3	PERFORMANCE CRITERIA	KNOWLEDGE CRITERIA
Electrical Tools	Able to identify electrical tools used	Electrical tools make, model, specifications
	Drawing of electrical tools	Parts/Components of electrical tools
ELEMENT AUTO-L2-02-E4	PERFORMANCE CRITERIA	KNOWLEDGE CRITERIA
Special Tools	Able to identify special tools	Special tools make, model, specifications
	Drawing of special tools	Parts/Components of Special tools
ELEMENT AUTO-L2-02-E5	PERFORMANCE CRITERIA	KNOWLEDGE CRITERIA
Service workshop equipment	Able to identify Service workshop equipment	Service workshop equipment make, model, specifications
	Drawing of hand tools	Parts/Components of hand tools

List of Elements of unit AUTO-L2-03

Vehicle Servicing

Element Code	Vehicle Servicing	Duration(Hours)
AUTO-L2-03-E1	Washing of a Vehicle	8
AUTO-L2-03-E2	Changing of oil and oil filter	8
AUTO-L2-03-E3	Changing of air filter	8
AUTO-L2-03-E4	Changing of fuel filter	8
AUTO-L2-03-E5	Changing of Coolant	8
	Total Duration	40

Detail of Elements In Unit AUTO-L2-03

Vehicle Servicing

UNIT CODE	AUTO-L2-03
DURATION	40 Hours
UNIT OVERVIEW	Student will be able to understand about vehicle servicing

ELEMENT AUTO-L2-03-E1	PERFORMANCE CRITERIA	KNOWLEDGE CRITERIA
	Able to understand washing procedure of a Vehicle.	Washing of a Vehicle
	Able to do washing of a Vehicle	
ELEMENT AUTO-L2-03-E2	PERFORMANCE CRITERIA	KNOWLEDGE CRITERIA
	Able to understand procedure of changing of oil and oil filter	Changing of oil and oil filter
	Able to change the oil and oil filter	
ELEMENT AUTO-L2-03-E3	PERFORMANCE CRITERIA	KNOWLEDGE CRITERIA
	Able to understand procedure of air filter changing	Changing of air filter
	Able to change air filter	
ELEMENT AUTO-L2-03-E4	PERFORMANCE CRITERIA	KNOWLEDGE CRITERIA
	Able to understand procedure of fuel filter changing	Changing of fuel filter
	Able to change fuel filter	
ELEMENT AUTO-L2-03-E5	PERFORMANCE CRITERIA	KNOWLEDGE CRITERIA
	Able to understand procedure of changing of coolant	Changing of coolant
	Able to change coolant	

**List of Element of Unit AUTO-L2-04
Customer sales care**

Element Code	Customer sales care	Duration(Hour)
AUTO-L2-04-E1	Customer sales care	10
	Total Duration	10 hours

**Detail of Elements in Unit AUTO-L2-04
Customer sales care**

UNIT CODE	AUTO-L2-04
DURATION	10 Hours
UNIT OVERVIEW	Student will be able to understand about customer sales care

ELEMENT AUTO-L2-05-E1	PERFORMANCE CRITERIA	KNOWLEDGE CRITERIA
	Able to understand about meaning of customer service	Customer service
	Able to list duties of a automobile sales person	

List of Elements of Unit AUTO-L2-05

Innovation and Development

Element Code	Innovation and Development	Duration
AUTO-L2-05-E1	Innovation and Development	10 Hours
	Total Duration	10 hours

Detail of Elements In Unit AUTO-L2-05

Innovation and Development

UNIT CODE	AUTO-L2-05	
DURATION	10Hours	
UNIT OVERVIEW	Student will be able to understand about Innovation and Development in automobile	
ELEMENT AUTO-L2-05-E1	Knowledge CRITERIA	Performance Criteria
	Importance of innovation and development	Able to identify innovation in automobile. Able to understand about new development

8. List of reference books and instructional material

Automobile Engineering, Vol 1 and II	Kirpal Singh	Standard Publishers
Text Book of Automobile Engineering	R. K. Rajput	Laxmi Publications
Automobile Engineering	R. K. Singal	S. K. Kataria and Sons
Automobile Engineering Theory	Kapil Dev	Computech Publications
Automobile Engineering,	K. M. Moeed	S. K. Kataria and Sons

9. List of tools, equipment and materials

1. Two Post lift
2. Air compressor
3. Wheel balancer
4. Bench vice
5. Work tables
6. Bench grinder
7. Oil draining & filling equipment
8. Cooling system tester
9. Multi meter
10. Hydro meter
11. BC clamp meter
12. Coolant tester
13. Battery & charging system tester (Megatronics)
14. Diagnostic tool (genesis Evo)
15. Hand tools
16. Pneumatic tools
17. Torque wrenches
18. Car seat covers
19. Steering covers
20. Gear Knob covers
21. Fender covers/dts
22. Floor mats
23. Cotton gloves
24. Hard toed boots
25. Sun glasses (3 m)
26. Bump caps
27. Air tester filter machine
28. Hydraulic press
29. Hydraulic jacks
30. Vehicle safety stands
31. Parts washing station car
32. Pullers

- 33. Sliding hammer
- 34. Wheel aligner
- 35. Head Light Focusing
- 36. A/c Machine (124 Robin air)
- 37. General Hand Tools
- 38. A/c Leakage Tester
- 39. Old car

10. Teacher's qualifications

Diploma In automobile/mechanical engineering with 3 year experience

Or

Degree in automobile/mechanical engineering with two year experience

11. List of contributors

1. Mr. Sunil K. Chaturvedi, CEO, Automotive Skills Development Council, Core 4-B 5th Floor India Habitat Centre, Lodhi Road, New Delhi – 110 003
2. Mr. Sudhir Vishwakarma, Coordinator, Automobile Division, CRISP, Shyamla Hills, Bhopal, MP-462013
3. Mr. Nagendra D. Kore, Vice Principal and HOD Automobile Technology Section, P.W Higher Secondary School, Khorlim- Mapusa, Goa,
4. Mr. Dhrender C. Srivastava, Retd Divisional Manager (Technical) UTC, 2046 A Anand Bagh, Opp State Bank of India, Haldwani, UK- 263139
5. Sh. Deepak Shudhalwar, Assistant Professor, E & T Division, PSSCIVE, Bhopal, MP-462013
6. Mr. A.C. Deb, Sr. Lecturer, (Auto) – HOD, PUSA Polytechnic PUSA, New Delhi -12
7. Mr. Vikas Gautam, Vocational Trainer, S.B.V. NO.1, Morigate, Delhi – 06
8. Dr. Saurabh Prakash, Head, E & T Division, PSSCIVE, Bhopal, MP – 462013 Programme Coordinator

Dr. Saurabh Prakash

Coordinator – Automobile Technology

Working as Professor & Head, of Department of Engineering and Technology PSS Central Institute of Vocational Education Bhopal. He has more than 25 years experience in curriculum development, Instructional material development and teacher training In Automobile Engineering, Mechanical Engineering, Civil Engineering and Information Technology. For further detail of the curriculum please contact E-mail: saurabhp60@gmail.com



PSS Central Institute of Vocational Education

**(a constituent unit of NCERT, an autonomous organization under Ministry of Human Resource
Development, Government of India)
Shyamla Hills, Bhopal**

