Community College of Skill Development

Lesson Plan: Motor Vehicle Technology (AMV-205-V)

Program: B.Voc. Automobile **Semester: III** **Credits: 03**

Course Objectives:

The aim of studying this course is to introduce the automobile fuel supply system, to understand the suspension and steering system, and study about Automobile Pollution.

Course Outcomes:

At the end of the course, the student shall be able to:

- CO1: Analyze and evaluate the fuel supply systems in spark ignition (SI) engines, identifying factors influencing carburetion and understanding the theory of carburetors.
- CO2: Examine fuel injection systems for compression ignition (CI) engines, including fuel pumps, injectors, and troubleshooting techniques, to ensure optimal engine performance.
- CO3: Evaluate engine friction and lubrication systems, understanding their impact on engine efficiency and longevity.
- CO4: Assess air pollution and emissions control methods in internal combustion engines, recognizing the environmental and health implications of exhaust emissions.

Equipment required in Classroom/ Laboratory/ Workshop

i. LCD/Projector
ii. Whiteboard/ Black Marker

Assessment Scheme

S.No.	Criteria	Marks
1	End Term Examination	75
2	Internal Evaluation Scheme	25
2a	Class Tests	15
2a (i)	Class Test-I	7.5

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2a (ii)	Class Test-II	7.5
2(b)	Teacher Assessment (Continuous Evaluation)	10
2b (i)	Attendance	5
2b (ii)	Assignment / Presentation	5

Lesson Plan

Lecture No.	Content to be Covered	Pedagogy	Date of Implementation	Course Outcomes Covered
UNIT – 1: FUEL SUPPLY SYSTEM IN S.I ENGINE (10 Lectures)				
1	Introduction to Carburetion and Induction System	Board & PPT	31/07/2025	CO1
2	Factors Influencing Carburetion	Board & PPT	31/07/2025	CO1
3	Mixture Requirements — Concepts of Lean and Rich Mixtures	Board & PPT	01/08/2025	CO1
4	Distribution and Transient Mixture Requirements	Board & PPT	01/08/2025	CO1
5	A Simple or Elementary Carburetor — Principle and Working	Board & PPT	14/08/2025	CO1
6	Complete Carburetor — Construction and Operation	Board & PPT	14/08/2025	CO1
7	Different Types of Carburetors	Board & PPT	21/08/2025	CO1
8	Petrol Injection System — Need and Functioning	Board & PPT	21/08/2025	CO1
9	Theory of Simple Carburetor	Board & PPT	22/08/2025	CO1
10	Comparison of Carburetion and Petrol Injection Systems	Board & PPT	22/08/2025	CO1
UNIT – 2: FUEL SUPPLY SYSTEM IN C.I ENGINE (10 Lectures)				
11	Introduction to Fuel Injection Systems for C.I. Engines	Board & PPT	28/08/2025	CO2
12	Functional Requirements and Functions of a Fuel Injection System	Board & PPT	29/08/2025	CO2

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13	Types of Fuel Injection Systems	Board & PPT	04/09/2025	CO2
14	Fuel Pump and Fuel Injector — Construction and Working	Board & PPT	04/09/2025	CO2
15	Types of Nozzles and Fuel Spray Patterns	Board & PPT	05/09/2025	CO2
16	Engine Starting Systems for C.I. Engines	Board & PPT	05/09/2025	CO2
17	Fuel Injection Computation in C.I. Engines	Board & PPT	11/09/2025	CO2
18	Troubleshooting of a Fuel System	Board & PPT	11/09/2025	CO2
19	Comparative Study — Diesel vs Petrol Fuel Systems	Board & PPT	18/09/2025	CO2
20	Fuel Data of Some Indian Automobiles	Board & PPT	18/10/2025	CO2
UNIT – 3: ENGINE FRICTION AND LUBRICATION SYSTEM (8 Lectures)				
21	Total Engine Friction and Its Sources	Board & PPT	19/09/2025	CO3
	Sessional Test -1	Paper & Pen	26/09/2025	
22	Effect of Engine Parameters on Engine Friction	Board & PPT	03/10/2025	CO3
23	Determination Methods of Engine Friction	Board & PPT	03/10/2025	CO3
24	Lubrication System — Purpose and Classification	Board & PPT	09/10/2025	CO3
25	Types of Lubrication Systems and Their Working	Board & PPT	09/10/2025	CO3
26	Crankcase Ventilation and Its Importance	Board & PPT	16/10/2025	CO3
27	Lubrication System of Some Indian Vehicles	Board & PPT	16/10/2025	CO3
28	Review and Case Studies on Friction and Lubrication Systems	Board & PPT	17/10/2025	CO3
UNIT – 4: AIR POLLUTION AND EMISSIONS CONTROL METHODS (12 Lectures)				
29	Emissions from S.I. and C.I. Engines — Overview	Board & PPT	17/10/2025	CO4
30	Effects of Toxic Gas Components on Human Health	Board & PPT	23/10/2025	CO4

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31	Generation of Toxic Exhaust Gas Components	Board & PPT	23/10/2025	CO4
32	Correlation Between Toxic Components of Exhaust	Board & PPT	24/10/2025	CO4
33	Vehicle Emission Control Methods — Introduction	Board & PPT	24/10/2025	CO4
34	Evaporative Emission (EVAP) Control System	Board & PPT	30/10/2025	CO4
35	Positive Crankcase Ventilation (PCV) / Blow-by Gas Control	Board & PPT	31/10/2025	CO4
36	Controlling Combustion to Improve Emissions	Board & PPT	06/11/2025	CO4
37	Treatment of Exhaust Gases — Secondary Air Injection	Board & PPT	07/11/2025	CO4
38	Three Way Catalytic Converter (TWC) — Structure and Function	Board & PPT	13/11/2025	CO4
39	Exhaust Gas Analyzer and Smoke Meter	Board & PPT	13/11/2025	CO4
40	Exhaust Emission Standards, Fuel Quality Standards, and Fuel Additives	Board & PPT	14/11/2025	CO4
	Sessional Test -2	Paper & Pen	15/11/2025	

Suggested Readings:

1. Automobile Engineering, R.K. Rajput, Laxmi Publications.
2. Automobile Engineering by Dr. Kripal Singh.

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