B. Tech 7h Semester (Mechanical Engineering)

Class: M -72

Lesson Plan: Automobile Engineering (PEC- IV)

Lecture No.	Topics to be Covered
	UNIT-1
1	Types of automobile vehicles, vehicle construction and layouts,
2	Vehicle frame and body, vehicle aerodynamics,
3	Requirements of Automobile Body, Unitised Body,
4	Car Body Styles, Bus Body & Commercial Vehicle Body Types
5	Front Engine Rear Drive & Front Engine Front Drive Vehicles, Four Wheel Drive Vehicles
6	Safety considerations; Safety features of latest vehicle;
7	Future trends in Automobiles,
8	Introduction to Hybrid and Electric Vehicle
	UNIT-2 Power Transmission and Axle
9	Requirements of transmission system,
10	Clutches and their types
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12	Different types of Gear Boxes- Sliding Mesh
13	Constant Mesh, Synchro- mesh Gear Boxes
14	Epicyclic gear box, continuous variable transmission (CVT)
	UNIT-3 Drive lines and Axle
15	Universal Joint, Universal Joints, Slip Joint; Constant Velocity Universal Joints
16	Differential and Drive Axles: Effect of driving thrust and torque reactions;
17	Propeller Shaft, Hotchkiss Drive, Torque Tube Drive
18	Front Wheel Drive, radius Rods;
19	Principle, Function Construction & Operation of Differential;
20	Rear Axles, Types of load coming on Rear Axles, Full Floating,
21	Three quarter Floating and Semi Floating Rear Axles.
	UNIT-4 Suspension System
22	Terms related to suspension system, Need of Suspension System,
23	Types of Suspension-double-wishbone, Mac Pherson strut and solid axle suspension;

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24	Factors influencing ride comfort, Suspension Spring;
25	Constructional details and characteristics of leaf springs.
26	Types of leaf springs.
	UNIT-5 Steering System
27	Front Wheel geometry & Wheel alignment
28	Caster, Camber, King pin Inclination
29	Toe-in/Toe-out, Conditions for true rolling motions of Wheels during steering
30	Different types of Steering Gear Boxes
31	Steering linkages and layout
32	Power steering – Rack & Pinion Power Steering Gear
33	Electronics steering System
	UNIT-5 Automotive Brakes, Tyres &Wheels
34	Classification of Brakes
35	Principle and constructional details of Drum Brakes, Disc Brakes
36	Brake actuating systems; Mechanical, Hydraulic
37	Pneumatic Brakes, Factors affecting Brake performance
38	Power & Power Assisted Brakes, ABS
39	Tyres of Wheels; Types of Tyre & their constructional details
40	Wheel Balancing, Tyre Rotation
41	Types of Tyre wear & their causes