

Lesson Plan

Name of faculty member		HITESH AGGARWAL		
Discipline		MECHANICAL ENGINEERING		
Semester		6th		
Subject		AUTOMOBILE ENGINEERING		
Lesson plan duration		15 week		
Work Load (Lecturer/ Practical) per week (In hours)		Lectures-03, Practicals-02 (each group)		
Week	Theory		Practical	
	Lecturer day	Topic (including assignment/test)	Practical day	Topic
1st	1st	Unit 1- Introduction Automobile and its development	1st	Fault and their remedies in (i) Battery Ignition system (ii) magnetic Ignition system(groups- G1,G2,G3)
	2nd	Various types of automobiles manufactured in India.		
	3rd	Layout of chassis		
2nd	4th	revision of layout of chassis	2nd	Demonstration of (i) Head Light Model (ii) Wiper and Indicators.Demonstration of (i) Head Light Model (ii) Wiper and Indicators.(groups- G1,G2,G3)
	5th	Unit 2 Power System Fuel systems for petrol and diesel engines including multi point fuel injection (MPFI)		
	6th	common rail direct injection (CRDI), Fuel injectors and nozzles.		
3rd	7th	Comparison of MPFI with carburetor system	3rd	revision of 1st,and 2nd practicals
	8th	Concept of double overhead cam		
	9th	single overhead cam, Twin cam 16 valve technology		
4th	10th	Unit 3 Transmission System Clutch - Function, Constructional details of single plate and multiplate friction clutch	4th	Demonstration of (i) AC Pump (ii) SU Pump (iii) Master Cylinders(groups- G1,G2,G3)
	11th	Centrifugal and semi centrifugal clutch, Hydraulic clutch		
	12th	Gear Box - Function, Concept of sliding mesh, constant mesh		
5th	13th	synchronmesh gear box, Torque converter and overdrive	5th	Demonstration of (i) rear axle (ii) differential (iii) steering system.(groups- G1,G2,G3)
	14th	Types of drives – Front wheel, Rear wheel, Four Wheel.		
	15th	Function of Propeller shaft, Universal joint Differential and types of Rear axles and Front Axles		
6th	16th	Wheels and Tyres - Types of wheels	6th	Fault finding practices on an automobile - four wheelers (petrol/ diesel vehicles). (groups- G1,G2,G3)
	17th	Types and specifications of tyres used in Indian vehicles and wheel balancing		
	18th	Unit 4 Steering System Function and principle of Ackerman and Davis steering mechanism		
7th	19th	types of steering gear boxes – Worm and nut, worm and wheel	7th	revision of 3rd, 4th, 5th practicals
	20th	worm and roller, rack and opinion, Power steering system		
	21st	alignment of wheels		
8th	22nd	Toe in, toe out, camber, caster, kingpin inclination	8th	Tuning of an automobile engine.
	23rd	revision of layout of chassis		
	24th	revision of steering mechanism		
9th	25th	Unit 5 Braking system Constructional details	9th	Driving practice on a 4-wheeler
	26th	working of mechanical, hydraulic brake. Concept of air and vacuum brake		
	27th	brake adjustment		
10th	28th	Introduction to Anti lock brake system and its working.	10th	Charging of an automobile battery and measuring cell voltage and specific gravity of electrolyte.
	29th	revision of hydraulic brake system		
	30th	revision of vaccume brake		
11th	31st	Unit 6 Suspension System Function	11th	Changing of wheels and inflation of tyres, balancing of wheels
	32nd	Types		
	33rd	Working of coil spring		
12th	34th	leaf spring	12th	Checking spark gap and valve clearance

	35th	Concept of Air suspension		
	36th	Shock absorber		
13th	37th	revision of coil spring	13th	Cleaning and adjusting a carburetor
	38th	Unit 7 Auto Electrical System Constructional details of lead acid cell battery		
	39th	Maintenance of batteries		
14th	40th	checking of batteries for voltage and specific gravity	14th	Revision of 6th, 7th and 8th practicals
	41st	Magnato and Battery coil ignition system		
	42nd	Concept of Dynamo		
15th	43rd	Alternator - Construction and working	15th	Revision of 9th,10th and 11th practicals
	44th	Charging of battery by Alternator and Regulator		
	45th	revision of 2nd,3rd ,6th units		

