

**LESSON PLAN**

**NAME OF TEACHER: - MR. MANOJ KUMAR**

**DISCIPLINE: - MECHANICAL ENGG.**

**SEMESTER - 6<sup>TH</sup>**

**SUBJECT: AUTOMOBILE ENGINEERING**

**DURATION: 16 WEEKS**

**THEORY: 3 LECTURE/WEEK**

<b>Theory</b>			
<b>Week</b>	<b>Lecture No.</b>	<b>Topic (Including assignment/test)</b>	<b>Sign. of Teacher &amp; Date</b>
1 <sup>st</sup>	1	<b>UNIT 1 -INTRODUCTION</b> Automobile and its development	
	2	Various types of automobiles manufactured and their manufacture and location of manufacturing unit, Classification of automobile, Layout of chassis	
	3	Types of drives – Front wheel, Rear wheel, Four Wheel, Introduction to electric and hybrid vehicles	
2 <sup>nd</sup>	4	Governing of fuel carburetor, electronic control module(ECM i.e. 8 bit, 16 bit and 32 bit computers)	
	5	Concept of single and double overhead cam, Twin cam 16valve technology in 4 cylinder engine.	
	6	<b>UNIT 2 - TRANSMISSION SYSTEM</b> Clutch - Functions, Constructional details of single plate and multiplate friction clutches, Centrifugal and semi centrifugal clutch, cone clutch ,Hydraulic clutch	
3 <sup>rd</sup>	7	Gear Box - Function, working of sliding mesh, constant mesh and synchromesh gear box, Torque converter and overdrive	
	8	Introduction to automated manual transmission, automatic transmission, Continuously variable transmission	
	9	Propeller shaft and rear axle-Functions, Universal joint, Differential and Different types of rear axles and rear axles drives	
4 <sup>th</sup>	10	Wheels and Tyres - Types of wheels, Types and specifications of tyres used in Indian vehicles	
	11	Toe in , toe out , camber , castor ,king pin inclination , wheel balancing and alignment	
	12	Factor affecting tyre life	
5 <sup>th</sup>	13	<b>UNIT 3 -STEERING SYSTEM</b> Function and principle of Ackerman and Davis steering mechanism,	
	14	Types of steering gears, Worm and wheel, Rack and pinion	
	15	Hydraulic power steering system, Electrical power steering system	
6 <sup>th</sup>	16	<b>UNIT 4 -BRAKING SYSTEM</b> Constructional details and working of mechanical and hydraulic brakes	
	17	Constructional details and working of air and vacuum brakes	
	18	Merits and demerits of brakes,	
7 <sup>th</sup>	19	Detail of master cylinder, wheel cylinder	
	20	Concepts of brake drum	
	21	Concepts of brake lining /pad brake adjustment	
8 <sup>th</sup>	22	Introduction to Anti- lock brake system and its working,	
	23	<b>UNIT 5 -SUSPENSION SYSTEM</b> Function of coil spring,	
	24	Types of coil spring, Leaf spring.	

9 <sup>th</sup>	25	Air suspension	
	26	Shock absorber(Telescopic type)	
	27	Function and construction , working of shock absorber	
10 <sup>th</sup>	28	<b>UNIT 6- BATTERY</b> Constructional details of lead acid cell battery	
	29	Specific gravity of electrolyte	
	30	Effect of temperature on specific gravity	
11 <sup>th</sup>	31	Specification of battery capacity rating, no. of plates	
	32	Selection of battery for particular use	
	33	Battery charging	
12 <sup>th</sup>	34	Chemical reaction during charge and discharge, Maintenance of batteries	
	35	Checking of batteries for voltage and specific gravity	
	36	Battery for electric and hybrid vehicles	
13 <sup>th</sup>	37	<b>UNIT 7- DYNAMO AND ALTERNATOR</b> Concept of Dynamo Function and detail	
	38	Regulators- voltage current and compensated type	
	39	Cut out- construction ,working and their adjustment	
14 <sup>th</sup>	40	Alternator - Construction and working, Charging of battery by Alternator	
	41	Introduction to integrated starter - alternator	
	42	Wiring, diagram of an automobile	
15 <sup>th</sup>	43	Revision	
	44	Revision	
	45	Revision	
16 <sup>th</sup>	46	Revision	
	47	Revision	
	48	Revision	