



LESSON PLAN

Course Code	Course Title	Semester	Branches	Contact Periods /Week	Academic Year	Date of commencement of Semester
23ME7E05	AUTOMOBILE ENGINEERING	VII	Mechanical Engineering	5	2026-27	22-06-2026

COURSE OUTCOMES

1	CO1: Classify and describe the different parts of an automobile engine. [K2]
2	CO2: Describe the working principle of transmission system and describe parts of transmission system. [K2]
3	CO3: Distinguish different steering components and steering. [K2]
4	CO4: Explain working principle of various parts of automobile such suspension and braking systems. [K2]
5	CO5: Explain the various components of electrical systems, lubrication systems and safety systems used in automobiles. [K2]

UNIT	Out Comes / Bloom's Level	Topics No.	Topics/Activity	Text Book / Reference	Contact Hour	Delivery Method
I	CO1: Identify the components of automobile, types of drives and engine specifications. [K2]	1. INTRODUCTION				
		1.1	Introduction to automobile engineering, Classification of automobiles	T1,R2	1	Chalk & Talk, PPT and Videos
		1.2	Major components of four wheeler automobile – chassis and body , power plant, power transmission,	T1,T2,R1	2	
		1.3	Types of drives - Rear wheel drive, Front wheel drive, Four wheel drive	T1,R1	2	
		1.4	Car body styles	T1,T2,R1	1	
		1.5	Super charger - working principle, types of super chargers.	T1,R1	1	
		1.6	Turbo charger– working principle, Crank case ventilation.	T1,R1,	1	
		1.7	Engine Specifications with regard to power, speed, torque, number of cylinders and arrangement, lubrication and cooling systems	T1,R1, R2	1	
Total					9	

II	CO2: Describe the working of different elements of automobile transmission system. [K2]	2.TRANSMISSION SYSTEM					Chalk & Talk, PPT and Videos
		2.1	Clutches – working principle, types, Single plate clutch	T1, R1,R2	1		
		2.2	Multi plate clutch, Magnetic Centrifugal	T1, R1,R2	1		
		2.3	Semi centrifugal clutche	T1,R2	1		
		2.4	Fluid fly wheel	T1, R2	1		
		2.5	Gear box -Sliding mesh gear box	T1, R1	1		
		2.6	Constant mesh gear box	T1, R1	1		
		2.7	Synchromesh gear box	T1, T2	1		
		2.8	Epicyclic gear box	T1, R1	1		
		2.9	Torque converter, Propeller shaft	T1, R1	1		
		2.10	Universal joint, differential,	T1, R1	1		
		2.11	Rear axle drives – Hotchkiss drive, Torque tube drive	T1, R1	1		
		2.12	Rear axle shaft supporting – semi Floating, full floating, and three quarter floating axles.	T1, R1	1		
		2.13	(content beyond syllabus) Over rive	T1	1		
Total			13				
III	CO3: Describe the steering geometry, steering mechanisms and steering gears of an automobile. [K2]	3.STEERING SYSTEM					Chalk & Talk, PPT and Active learning method
		3.1	Function and requirements of steering system and general arrangement of steering system	T1,T2, R2	1		
		3.2	Steering geometry – camber, castor, king pin rake , Combined angle toe-in, toe-out, Center point steering.	T1,T2, R2	2		
		3.3	Steering mechanism – Ackerman steering mechanism	T1,T2, R2	1		
		3.4	Davis steering mechanism,	T1,T2,R2	1		
		3.5	Steering gears.	T1,T2,R2	2		
		3.6	Steering linkages	T1,T2,R2	1		
		3.7	Power steering(Beyond syllabus)	T1	1		
Total			09				
IV	CO4: Describe and compare different suspension and braking systems of an automobile. [K2]	4. BRAKING SYSTEM					Chalk & Talk, PPT and Videos
		4.1	Function and Requirements of Braking system, Types of Brakes, Drum Brakes and Mechanical brakes	T1, R1	1		
		4.2	Disc Brakes		1		
		4.3	Hydraulic brakes –working Principle, Master cylinder	T1, R1	1		
		4.4	wheel cylinder, Tandem master cylinder	T1, R1	1		
		4.5	bleeding of hydraulic brakes, Pneumatic brakes	T1, R1	1		
		4.6	Vacuum brakes	T1, R1	1		
		SUSPENSION SYSTEM					
		4.7	Object of suspension systems, Types of suspension springs, Steel springs – Leaf springs, Tapered leaf spring	T1, R1	1		

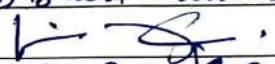
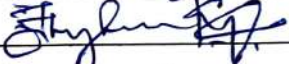
		4.8	Coil spring and Torsion bar	T1, R1	1		
		4.9	Telescopic shock absorber	T1, R1	1		
		4.10	Rigid axle suspension system, independent axle suspension system	T1, R1	1		
		4.11	Wishbone type, Mac Pherson strut type	T1, R1	1		
		4.12	Vertical guide type and swinging half axle type.	T1, R1	1		
		4.13	Hill holder (Beyond syllabus)	T1	1		
					Total	13	
V	CO5: Explain the various components of electrical systems, lubrication systems and safety systems used in automobiles. [K2]	5. ELECTRICAL SYSTEM, ENGINE LUBRICATION & SAFETY SYSTEMS					Chalk & Talk, PPT and Active learning method
		5.1	Requirements of charging circuit, generator circuit	T1, R1	1		
		5.2	Need for cut-out, cutout relay, combined current voltage regulator	T1, R1	1		
		5.3	Starting System, requirements, standard, Folo through type Bendix drive mechanism	T1, R1	1		
		5.4	compression spring type drives, over running clutch type and dyer type drives	T1, R1	1		
		5.5	Solenoid switch, Horn , Wiper,	T1, R1	1		
		5.6	Fuel gauge indicator, Lighting system	T1, R1	1		
		5.7	Engine lubrication- splash pressure lubrication system	T1, R1	1		
		5.8	Oil filters: Cartridge, edge type and centrifugal type	T1, R1	1		
		5.9	Oil pumps – Gear Pump, Rotor Pump, Vane Pump and Plunger Pump.	T1, R1	1		
		5.10	Safety systems - Introduction, seat belt, air bags	T1, R1	1		
		5.11	bumper, anti lock brake system (ABS)	T1, R1	1		
		5.12	Wind shield, suspension sensors, , mirrors	T1, R1	1		
		5.13	Traction control, central locking		1		
		5.14	Electric windows, speed control.	T1, R1	1		
					Total	14	
CUMULATIVE PROPOSED PERIODS					58		
Text Books:							
S.No	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION						
T1	Dr. Kirpal Singh, Automobile Engineering Volume I&II, 13 th Edition, Standard Publications, New Delhi, 2014.						
T2	R.K.Rajput. R. K, A Textbook of Automobile Engineering., 2 nd edition, Lakshmi publications (P) Ltd., New Delhi, 2017.						

Reference Books:

R1	R.B. Gupta , Automobile Engineering, 2 nd edition , Satya Prakashan Publications, 2016.
R2	S. Narang " Automobile Engineering " 2 nd edition Khanna Publishers, 2012
R3	P.S Gill " Automobile Engineering ", 3 rd edition S.K. Kataria & Sons, 2011.

Web Details

1	https://www.youtube.com/watch?v=c3CalfdYZYw&list=PLpe3qgeJLpB2wAoaRSY9_yAeOt7u0LTNd&index=1
	https://www.youtube.com/watch?v=qfkTVYJlx8Q&list=PLpe3qgeJLpB2wAoaRSY9_yAeOt7u0LTNd&index=2
2	https://youtube.com/watch?v=PYje-4D76kc
3	https://www.youtube.com/watch?v=S_B6Twq1FOE&list=PLpe3qgeJLpB2wAoaRSY9_yAeOt7u0LTNd&index=5

		Name	Signature with date
1	Faculty	Dr. D. BHANU PRAKASH	
2	Course Coordinator	Dr. D. BHANU PRAKASH	
3	Module Coordinator	Dr. .R. LALITHA NARAYANA	
4	Programme Coordinator	Dr. M. FRANCIS LUTHER KING	


Principal