



C.U.SHAH UNIVERSITY – Wadhwan City

FACULTY OF: - Technology and Engineering (Diploma Engineering)

DEPARTMENT OF: - Mechanical Engineering

SEMESTER: - VI **CODE:** - 2TE06AEN1

NAME OF SUBJECT: - Automobile Engineering

Teaching & Evaluation Scheme:-

Subject Code	Name of the Subject	Teaching Scheme				Credits	Evaluation Scheme							
		Th	Tu	Pr	Total		Theory				Practical (Marks)			Total
							Sessional Exam		University Exam		Internal		University	
							Marks	Hours	Marks	Hours	Pr/Viva	TW	Pr	
<u>2TE06AEN1</u>	Automobile Engineering	04	00	02	06	5	30	1.5	70	03	----	20	30	150

Objective: -

Students will know about automotive market in India, Identify various automotive systems, Explain working and construction of various automotive systems, Carry out preventive maintenance of vehicle.

Prerequisites: - Thermal Engineering-I

Course outline:-

Sr. No.	Course Contents	Number of Hours
1	Introduction of automobile Classification of Automobile, Vehicle layout & types, Body construction-Types & Nomenclature of car body, Introduction to aerodynamic body shape.	04
2	Fuel supply system Fuel feed system in S.I engine, types, gravity & pump feed system, layout of S.I engine fuel pump system, function of each component, Fuel mixing & circuit control system, carburetor, working principal of simple carburetor and requirement of air –fuel ratio, Petrol injection system, layout and working principle of MPFI, advantages & disadvantages, Fuel supply system in C.I engine, layout, component, function, working & line diagram of common rail, individual pump system, fuel injector, single orifice, multi orifice.	12
3	Automobile transmission Clutch-necessity, construction & working of coil spring, diaphragm spring type clutch, Gear Box-types of gear box, construction & working of sliding mesh, constant mesh, synchromesh, epicyclic gear box, torque convertor, over drive, transfer case, Final drive-necessity, construction & working of propeller shaft and differential.	10
4	Control system Steering system- requirement of steering system, construction & working of linkage, Steering gear box- construction & working of rack and pinion, recirculating ball type. Introduction to power steering, Steering geometry – camber, caste, toe-in, toe-out, kingpin inclination and their effect, Brake system- construction & working of drum,	10

	disc brake, hydraulic brake, pneumatic brake. Comparison of disc and drum brake.	
5	Suspension systems, wheels and tyre Necessity & classification of suspension system, Working & construction of leaf spring, rigid axle suspension, Introduction to air suspension, Construction & working of McPherson and wishbone suspension, Construction & working of telescopic shock absorber, Construction & working of spoke wheel, disc wheel, Types of rims, their construction & working, Construction, working & comparison of radial, cross-ply and tubed, tubeless tyre & type specification.	10
6	Automobile electrical systems Battery-working, construction & rating battery, Ignition system, starting system, charging system, Lighting system-head light, tail light, indicator light, Gauges-fuel level gauge, oil level gauge, water temperature gauge.	08

List of Experiments:-

- Demonstration of single plate coil and diaphragm spring type plate.
- Demonstration of synchromesh gear box.
- Demonstration of differential gear box
- Demonstration of rack & pinion steering gear box
- Demonstration of brake system.
- Demonstration of Wheel & tyre.
- Testing of battery and charging system
- Demonstration of suspension system.
- Performance of wheel balancing and wheel alignment.
- Demonstration of lighting system.

Suggested List of Student Activities:-

- Carrying out preventive maintenance of two wheeler as per manufacturer specification.
- Carrying out preventive maintenance of four wheeler as per manufacturer specification.
- Collect/ download product catalogues with specification of various types of two and four wheeler of recent trends.
- At least one visit of any two and four wheeler show room.

Books Recommended: -

- Automobile Engineering -K.K Jain and R.B.Asthana, Tata Mcgraw hill.
- Automobile Engineering- G.B.S.Narang, Khanna Publication.
- Automobile Engineering Vol-I,Vol-II, Kirpal Singh, Standard publication.
- Automobile Engineering- R.K.Singal, S.K.Kataria
- Automotive Mechanics- William Crouse