

GANPAT UNIVERSITY

FACULTY OF ENGINEERING & TECHNOLOGY

Programme	Bachelor of Technology				Branch/Spec.	Automobile Engineering			
Semester	VIII				Version	1.0.0.0			
Effective from Academic Year			2020-21		Effective for the batch Admitted in			July 2017	
Subject code	2AE801		Subject Name		Two and Three Wheeler Technology				
Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture(DT)		Practical(Lab.)		Total	CE	SEE	Total	
	L	TU	P	TW					
Credit	3	0	1	0	4	Theory	40	60	100
Hours	3	0	2	0	5	Practical	30	20	50
Pre-requisites:									
Automobile System									
Objectives of the Course:									
After completion of this course, student will be able to									
<ol style="list-style-type: none"> 1. Understand different types of two and three wheelers. 2. Understand special parts and their importance and working in two and three wheelers. 3. Understand maintenance of two and three wheelers. 4. Identify and locate different frames, suspension system and transmission unit used on various two and three wheeler vehicles. 									
Theory syllabus									
Unit	Content								Hrs
1	Introduction: Development, Classification & layouts of two wheelers (motorcycles, scooters, mopeds) and Three wheelers, applications & capacity – goods & passengers, study of technical specification of Two & Three wheelers.								6
2	Power units, Ignition system and Other electrical systems 2 stoke and 4 stoke engines. Design criteria for engines – design of cylinders, cylinder head, cooling fins, crank case, connecting rod and crank shaft. Carburetor types and design. Battery coil ignition, magneto ignition and electronic ignition. Lighting and other electrical systems kick starter system.								9
3	Transmission Systems Clutch – special requirements, different types used in two & three wheelers, need of primary reduction, belt and chain drive, selection of transmission - gear transmission, gear shift mechanism, belt transmission, automatic transmission (Continuous Variable Transmission - CVT, Epicyclic), final drive & differential for three wheeler, wheel drive.								7
4	Steering and Suspension Steering geometry, steering column construction, steering system for three wheelers, Suspension requirements, design considerations, trailing & leading link, swinging arm, springs & shock absorbers, SNS for suspension Brake.								7
5	Brakes, Wheels and Tyres Design consideration of brake, types of brakes – disc, drum, braking mechanism – mechanical, hydraulic & servo, wheel types - spokes, disc, split, construction of tube type tyre and tubeless tyres, it's advantages & comparison – methods vulcanizing of tubes & tyres for tubeless tyres, special tyre requirements for two & three wheelers.								7
6	Frames and Body Types of frame, construction, loads, design consideration, materials, Types of three wheeler bodies, layout, RTO regulations, aerodynamic, aesthetic & ergonomics considerations for body work, side car.								5

7	Maintenance and Safety Preventive & breakdown maintenance, factors affecting fuel economy & emission. Helmets: Types & purpose. Safety standards related to helmets.	4
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Practical content

Practical assignments and tutorials are based on above syllabus.

Text Books

1	Newton Steed, "The Motor Vehicle", McGraw Hill Book Co. Ltd., New Delhi, 2010
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2	Siegfried Herrmann, "The Motor Vehicle", Asia Publishing House, Bombay, 2011
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Reference Books

1	Dhruv U Panchal, "Two and three wheelers", Pearson Publications, 2007.
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2	G.B.S. Narang, "Automobile Engineering", 5th Edition, Khanna Publishers, Delhi, 2010
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ICT/ MOOCs references

1.	NIL
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Course Outcomes:

1. Learning of different types of two and three wheelers.
2. Learning of special parts and their importance and working in two and three wheelers.
3. Learning of maintenance of two and three wheelers.