

1152AU106

TWO AND THREE WHEELERS**L T P C****3 0 0 3****1. Preamble**

This course makes the students to know and understand the constructional details operating characteristics and vehicle design aspects of two and three wheeled vehicles.

2. Pre requisite

1151AU214 Automotive chassis

3. Course Educational Objectives

Students undergoing this course are expected to

- To develop the basic knowledge of the students in constructional details of two and Three Wheelers.
- To develop the skills of the students in the operating principles.

4. Course Outcomes:

Upon the successful completion of the course, learners will be able to

CO Nos.	Course Outcomes	Level of learning domain (Based on revised Bloom's)
C01	Know the working of two and four stroke engines	K2
C02	Explain the functioning of clutch and gear box	K2
C03	Know the wheels, tyres, suspensions and braking systems	K2
C04	Familiarize the latest models of two wheelers	K2
C05	Explain the operations of three wheelers and latest models of three wheelers	K2

5. Correlation of COs with Programme Outcomes:

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	H	M	M	M	H		H					M	M	M
CO2	H	M	M	M	H		H					M	L	M
CO3	H	M	M	M	H		H					M	M	M
CO4	H	M	M	M	H		H					M	M	M
CO5	H	M	M	M	H		H					M	M	M

H- Strong; M-Medium; L-Low

6. Course Content:**UNIT I POWER UNIT****L-9**

Two Stroke SI Engine, Four Stroke SI Engine - Merits and Demerits. Symmetrical and Unsymmetrical Port Timing Diagrams. Types of Scavenging Processes: Merits and Demerits, Scavenging Pumps. Rotary Valve Engine, Fuel System, Lubrication System. Magneto Coil and Battery Coil Spark Ignition System, Electronic Ignition System. Starting System - Kick Starter System.

UNIT II CHASSIS AND SUB-SYSTEMS**L-9**

Mainframe and Its Types - Chassis and Shaft Drive - Single, Multiple Plates and Centrifugal Clutches. Gear Box and Gear Controls - Front and Rear Suspension Systems - Shock Absorbers - Panel Meters and Controls on Handle Bar.

UNIT III BRAKES, WHEELS AND TYRES**L-9**

Drum Brakes, Disc Brakes, Front and Rear Brake Links, Layouts - Spoke Wheel, Cast Wheel, Disc Wheel and Disc Types - Tyres and Tubes.

UNIT IV TWO WHEELERS**L-9**

Study and Comparison of Specification and Features of Major Indian Models of Mopeds, Scooters and High Performance Vehicles. Injection Systems, Silencer Design and After Treatment Devices.

UNIT V THREE WHEELERS**L-9**

Study and Comparison of Specification and Features of Indian Models. Auto Rickshaws, Pickup Van, Delivery Van and Trailer. Maintenance & Fault Tracing, Injection Systems, Silencer Design and After Treatment Devices

Total: 45 Periods**7. Textbooks**

1. Irving.P.E. - Motor Cycle Engineering - Temple Press Book, London – 1992.
2. The Cycle Motor Manual - Temple Press Limited, London – 1990.

8. References

1. Encyclopedia of Motorcycling - 20 volume Marshall, Cavensih, UK – 1989.
2. BrayantR.V,Vespa - Maintenance and Repair Series – S.Chand& Co., New Delhi – 1986
3. Raymond Broad Lambretta - A Practical Guide to maintenance and repair – S.Chand& Co., New Delhi – 1987