

DEPARTMENT OF MECHANICAL ENGINEERING
SYLLABUS FOR B.E. VI-SEMESTER (2018-19)
INTRODUCTION TO AUTOMOBILE ENGINEERING (OPEN ELECTIVE-VII)

Instruction : 2Hours /week	Semester End Exam Marks :70	Subject Reference Code : OE630ME
Credits : 2	Sessional Marks:30	Duration of Semester End Exam : 3 Hours

Course objectives	Course Out comes
<p>The objectives of this course are to:</p> <ol style="list-style-type: none"> 1.Appreciate and understand the engine components 2.Acquire knowledge of different types of fuel supply, cooling, lubrication and steering systems. 3.Acquire knowledge on operation of gear and brake mechanisms 4.Understand emissions and pollution control techniques of automobile 	<p><i>On completion of the course, the student will be able to:</i></p> <ol style="list-style-type: none"> 1. Identify types of Automobiles and engine components. 2. Describe the engine fuel injection system in petrol and Diesel engines. Cooling, lubrication, systems, suspension mechanism and tyres of wheels and tyres 3. Analyse the Working principle and operation of gear mechanisms and operation of brake systems. 4. Know the IC engine pollutants and pollution control techniques.

UNIT-I

Introduction: Types of automobiles, Hybrid Vehicles: Electrical, gas and Fuel cell vehicles. Chassis and body. Types of IC Engines: Two stroke and four stroke engines. Engine components: cylinder block, cylinder head, crankcase, crank shaft and cam shaft.

UNIT-II

Fuel system: Introduction to Multipoint fuel injection system (MPFI) of petrol engines and Introduction to CRDI system for diesel engines. Cooling system, Lubrication system, Ignition system, suspension and steering system.Types of Wheels and Tyres.

UNIT-III

Power Train: Single plate clutch, Manual Gear Box: synchromesh gear box, Automatic Gear Box and working principle of differential.

Brakes: Types: Drum and Disc brakes, Mechanical and Hydraulic Brakes.**ABS** and SRS Airbag system.

UNIT –IV

Automobile Emissions and control: Automobile pollutants and sources of pollution. Pollution Control Techniques: Catalytic Converters, EGR and PCV. Bharath emission Norms.

Learning Resources:

1. Crouse & Anglin, "Automobile Engineering", 10th Ed., Tata McGraw Hill Publishing Co. Ltd., New Delhi,. 2006.
2. Kirpal Singh, "Automobile Engineering", Vol. I & II, 13th edition, Standard Publishers, Delhi ,ISBN No. 9788180141966
3. R.B Gupta, "Automobile Engineering "Satya Prakashan, 2015
4. Joseph Heitner, "Automotive Mechanics", Affiliated East West Pvt. Ltd.
5. C.P. Nakra, "Basic Automobile Engineering", Dhanpat Rai Publishing Co. (P) Ltd., New Delhi, 2016.