

IV Year –I SEMESTER

T	P	C
0	3	2

### **AUTOMOBILE ENGINEERING LAB & INSTRUMENTATION LAB**

**Objective: To impart practical knowledge on automobile working, Servicing and maintenance of selected components, and to calibrate the measuring devices.**

### **AUTOMOBILE ENGINEERING LAB**

1. Dismantling and assembly of LMV components as following :  
a) Gear box b) clutch assembly c) Propeller shaft d) differential gear box e) rear axle t) suspension system g) steering mechanism.
2. Dismantling and assembly of door frames, door locks and window locks
3. Study of driver's seat layout in anyone LMV and anyone HMV.
4. Testing, servicing and charging of batteries
5. Servicing of generator, alternator and starter motor with dismantling, testing, inspection and assembly.
6. Servicing of ignition systems
7. Drawing of general electrical wiring diagrams of various vehicles { two and four wheelers )
8. Calibration of micrometer, measurement of plain plug, measurement of plain ring gauge, taper gauge
9. Measurement of taper using sine bar and other instruments.
10. Measurement of base circle diameter and tooth thickness of spur and helical gears
11. Use of slip gauges, measurement of screw threads using screw thread micrometer, use of comparators, experiments involving profile projectors

**Note: Driving practice of a geared two wheeler and anyone LMV for a minimum of 10 hours duration need to be provided.**

### **Section-II INSTRUMENTAION LAB**

1. Calibration of Pressure Gauges
2. Calibration of transducer for temperature measurement.
3. Study and calibration of LVDT transducer for displacement measurement.
4. Calibration of strain gauge for temperature measurement.
5. Calibration of thermocouple for temperature measurement.
6. Calibration of capacitive transducer for angular displacement.
7. Study and calibration of photo and magnetic speed pickups for the measurement of speed.
8. Calibration of resistance temperature detector for temperature measurement.
9. Study and calibration of a rotometer for flow measurement.
10. Study and use of a Seismic pickup for the measurement of vibration amplitude of an engine bed at various loads.
11. Study and calibration of Mcleod gauge for low pressure.

**Course outcome: After completing the course the learner will be in a position to servicing the generators and batteries and ignition systems and is expected to wellverse with various calibrated the devices.**