

B. E. MECHANICAL ENGINEERING			
Choice Based Credit System (CBCS) and Outcome Based Education (OBE)			
SEMESTER –V			
ENERGY CONVERSION LABORATORY			
Course Code	18MEL58	CIE Marks	40
Teaching Hours/Week (L:T:P)	0:2:2	SEE Marks	60
Credits	02	Exam Hours	03
Course Learning Objectives:			
• This course will provide a basic understanding of fuel properties and its measurements using various types of measuring devices • Energy conversion principles, analysis and understanding of I C Engines will be discussed. Application of these concepts for these machines will be demonstrated. Performance analysis will be carried out using characteristic curves. • Exhaust emissions of I C Engines will be measured and compared with the standards.			
Sl. No.	Experiments		
	PART A		
1	Lab layout, calibration of instruments and standards to be discussed		
2	Determination of Flash point and Fire point of lubricating oil using Abel Pensky and Marten's (closed) / Cleveland's (Open Cup) Apparatus.		
3	Determination of Calorific value of solid, liquid and gaseous fuels.		
4	Determination of Viscosity of lubricating oil using Redwoods, Saybolt and Torsion Viscometers.		
5	Valve Timing/port opening diagram of an I.C. Engine.		
	PART B		
6	Performance Tests on I.C. Engines, Calculations of IP, BP, Thermal efficiency, Volumetric efficiency, Mechanical efficiency, SFC, FP, A:F Ratio, heat balance sheet for a. Four stroke Diesel Engine b. Four stroke Petrol Engine c. Multi Cylinder Diesel/Petrol Engine, (Morse test) d. Two stroke Petrol Engine Variable Compression Ratio I.C. Engine.		
7	Measurements of Exhaust Emissions of Petrol engine.		
8	Measurements of Exhaust Emissions of Diesel engine.		
	PART C (OPTIONAL)		
9	Visit to Automobile Industry/service stations.		
10	Demonstration of $p\theta$, pV plots using Computerized IC engine test rig		
Course Outcomes: At the end of the course, the student will be able to:			
CO1: Perform experiments to determine the properties of fuels and oils.			
CO2: Conduct experiments on engines and draw characteristics.			
CO3: Test basic performance parameters of I.C. Engine and implement the knowledge in industry.			
CO4: Identify exhaust emission, factors affecting them and exhibit his competency towards preventive maintenance of IC engines.			
Scheme of Examination:			
ONE question from part A: 30 Marks			
ONE question from part B: 50 Marks			
Viva –Voice : 20 Marks			
Total : 100 Marks			