Course Type	Course Code	Name of Course	L	T	P	Credit
DP	MEC 205	Thermodynamics and Fluid Mechanics Lab	0	0	2	2

Course Objective

This course deals with understanding, verification and practical applications of basic principles of thermodynamics and fluid mechanics.

Learning Outcomes

On successful completion of this course, students will learn:

- Use of basic equipment in thermodynamics
- Basics of construction, operations and performance characteristics of 4-stroke petrol and diesel engine
- Verification of some basic principles of fluid mechanics.
- Measurement of flow and frictional head loss during flow

Unit No.	Topics to be Covered	Laboratory	Learning Outcome
1	Determination of Calorific value of solid/liquid fuel	1	Understanding the use of calorimeter to determine calorific value of fuels.
2	Volumetric analysis of pollutants in flue gas by Orsat apparatus	1	Understanding the use of Orsat apparatus to determine volumetric composition of flue gases
3	Performance study of Single cylinder 4-S Petrol Engine	1	Understanding the construction, operations and performance characteristics of 4-stroke petrol engine
4	Performance study of single Cylinder 4-s Diesel Engine	1	Understanding the construction, operations and performance characteristics of 4-stroke diesel engine
5	Determination of Mechanical Equivalence of heat	1	Understanding the use of Joule's apparatus to determine mechanical equivalence of heat.
6	Determination of Dryness fraction of steam	1	Understanding the use of separating and throttling calorimeter to determine the quality or dryness fraction of steam.
7	Determination of Darcy's friction coefficient	1	Understanding the frictional losses in pipe flow and method to estimate it.
8	Verification of Bernoulli's theorem	1	Understanding, verification and applications of Bernoulli's theorem.
9	Determine the discharge coefficient (C_d) of a venturimeter	1	Understanding the measurement of discharge coefficient and flow rate through pipes.
10	Determination of Hydraulic coefficients C_d, Cv, and C_c of an orifice	1	Understanding the measurement of various coefficients related to an orifice and flow rate through it.

Text Books / References:

1. Engineering Thermodynamics: P. K. Nag, Mc Graw Hill Education (India) Pvt Ltd, New Delhi.
2. S.K. Som and G. Biswas, Introduction to Fluid Mechanics and Fluid Machines, Tata McGraw-Hill.