Devi Ahilya University, Indore, India Institute of Engineering & Technology				**BE II Year (Mechanical Engineering) (Full Time)**			
Subject Code & Name	**Instructions Hours per Week**			**Credits**			
MER3L1 WORKSHOP/PRACTICALS SEMINAR	**L**	**T**	**P**	**L**	**T**	**P**	**Total**
	0	**0**	**2**	**0**	**0**	**2**	**2**
Duration of Theory Paper: 0 Hours							

Learning Objectives:
The basic objectives of the subject are:
1. To understand Practical of thermal systems and their processes.
2. To understand the Practical applications of thermodynamics

Prerequisite(s): Engineering Physics and Elements of Mechanical Engineering.

COURSE CONTENTS

UNIT- 1
Second Law of Thermodynamics:
1. Finding out the Coefficient of Performance of a refrigerator.
2. Finding out Energy Performance Ratio of a refrigerating plant used as a heat pump.
3. Establishing the relation between EPR and COP.

UNIT- II
Entropy:
1. Verifying the entropy principles in generalized fluid flow.

UNIT- III
Fuels and Combustion: Introduction, Classifications of fuels, Combustion Equations, Theoretical Air and Excess Air, Stoichiometric Air-Fuel Ratio, Weight of Carbon in Flue Gases, Weight of Flue Gases per kg of Fuel Burnt, Analysis of Exhaust and Flue Gases .

UNIT-IV
Thermodynamic Relations:
1. Derive the Maxwell equation in Thermodynamic relations.
2. Derive the Tds equation in Thermodynamic relations.

UNIT- V
Gas Compressors:
1. Finding out the Isothermal, Volumetric Efficiency of the Reciprocating Air Compressor.
2. Finding out the effectiveness of the intercooler in two stage compressor.

Learning Outcomes:
Upon Completing the Course, Student will be able to:
1. Develop the ability to apply the basic principles of Classical Thermodynamics in a systematic way.
2. To understand the basic concepts of heat transfer and work transfer involved in the process.
3. Equip them with tremendous useful set of tools for thermal analysis of any thermodynamic system

BOOKS RECOMMENDED :
[1] Yunus A Cengel ,*Thermodynamics-An Engineering Approach*, Tata Mc-Graw Hill Publishing House, New Delhi, V Edition
[2] Sonntag R E, Van Wylen G J, Borgnakke C, *Fundamentals of Thermodynamics*, John Wiley & Sons Pte Limited , Singapore, V Edition
[3] Nag P K , *Engineering Thermodynamics*, Tata Mc-Graw Hill, New Delhi, V Edition.