Year & Sem: E2S2	Course Code: ME2202	Course Name: **Thermal Engineering I**	No. of Credits: 4	L	T&PS	P
				2	2	0

UNIT I: I C Engines: Otto, Diesel, Dual & Stirling Cycles, Comparison of cycles. Classification of Engines. Testing and performance Characteristics Heat balance, Indicators and Indicator Diagrams.

UNIT II: Fuels and Fuel ratings, Fuel feed systems-Carburetor, Fuel injection systems, Fuel pump and injector. Ignition Systems Battery and Magneto. Governing of I C Engines.

UNIT III: Normal and abnormal combustion in S I and C I Engines, Design and operating Parameters affecting engine power, Economy and emissions. Air Pollution, Rotary Engines, Supercharging, Cooling, Lubrication and wear

UNIT IV: Refrigeration: Mechanical vapor compression refrigeration cycles - RC cycle , single stage saturation cycle, effects of sub-cooling and superheating, optimum suction stage. Properties of refrigerants.

UNIT V: Reciprocating compressor- volumetric efficiency and work requirement, rotary, centrifugal and screw compressors. Multistage, multi-evaporator and cascade refrigeration cycles. Gas cycle refrigeration, thermoelectric refrigeration, vortex tube and steam jet refrigeration. Absorption refrigeration cycle- use of h-x diagram and Platen-Munter's refrigeration system. Expansion valves, evaporators, and condensers.

UNIT VI: Air-conditioning: Principles of psychrometry and psychrometry processes. Comfort chart and effective temperature. Solar radiation, design conditions and cooling load calculation. Summer and Winter air-conditioning. Duct design

References/Text Books:

1. V Ganesan, *Internal Combustion Engines*.
2. M. L. Mathur & R. P. Sharma, *Internal combustion engines.*

Lecture Plan: Unit-I & -II syllabus for MID-I, Unit-III & -IV syllabus for MID-II and Unit-V & -VI syllabus for MID-III examinations.

Video Lectures (Web Links):

1.
2.

Study Materials (Web Links):

1.
2.