Discipline: Mechanical Engineering	Semester : 3rd Semester 2025-2026 Dt-15/07/2025 To 15/11/2025	Name of the Teaching Faculty: Mrs. Swagatika Babu (Sr.Lect. Mech. Engg)
Subject: TE 1	No. of Days/week Class Allotted: 45	No of weeks: 18
week	Class Day	Theory Topics
1st	1st	Thermodynamic Systems (closed, open, isolated) ; Thermodynamic properties o a system (pressure, volume, temperature, entropy, enthalpy, Internal energy and units of measurement) ;
	2nd	Intensive and extensive properties ; Define thermodynamic processes, path, cycle , state, path function, point function
	3rd	Thermodynamic Equilibrium ; Quasi-static Process
2nd	1st	Laws of thermodynamics (statements only)
	2nd	Brief description of energy Sources: Classification of energy sources: Renewable Non-Renewable
	3rd	Fossil fuels (CNG & LPG)
3rd	1st	Solar Energy: Flat plate and concentrating collectors & its applications (working principles of Solar Water Heater, Photovoltaic Cell, Solar Distillation)
	2nd	Continue...
	3rd	Definitions of Wind Energy; Tidal Energy; Ocean Thermal Energy; Geothermal Energy; Biogas, Biomass, Bio- diesel; Hydraulic Energy, Nuclear Energy; Fuel cell.
4th	1st	Assumptions made in air standard cycle analysis; Brief description of Carnot, Otto and Diesel cycles with P-V and T-S diagrams;
	2nd	Continue...
	3rd	Internal and external combustion engines; advantages of I.C. engines over external combustion engines;
5th	1st	classification of I.C. engines; neat sketch of I.C. engine indicating component parts
	2nd	Function of each part and materials used for the component parts - Cylinder, crank case, crank pin, crank, crank shaft, connecting rod, wrist pin, piston, cooling pins cylinder heads, exhaust valve, inlet valve
	3rd	Working of four-stroke and two stroke petrol and diesel engines; Comparison of two stroke and four stroke engines

6th	1st	Continue...
	2nd	Continue...
	3rd	Comparison of C.I. and S.I. engines; Valve timing and port timing diagrams for fou stroke and two stroke engines.
7th	1st	Continue...
	2nd	Fuel system of Petrol engines; Principle of operation of simple carburetor
	3rd	Zenith carburetors; Fuel system of Diesel engines; Types of injectors and fuel pumps
8th	1st	Simple Cooling system: air cooling, water cooling system with thermo siphon method of circulation and water cooling system with radiator and forced circulation (description with line diagram).
	2nd	Continue...
	3rd	Comparison of air cooling and water cooling system
9th	1st	Ignition systems – Battery coil ignition and magneto ignition (description and working, Comparison of two systems
	2nd	Types of lubricating systems used in I.C. engines with line diagram
	3rd	Continue...
10th	1st	Types of governing of I.C. engines – hit and miss method, quantitative method, qualitative method and combination methods of governing; their applications; Objective of super charging
	2nd	Continue...
	3rd	Brake power; Indicated power; Frictional power; Brake and Indicated mean effective pressures.
11th	1st	Brake and Indicated thermal efficiencies; Mechanical efficiency; Relative efficiency
	2nd	Performance test; Morse test; Heat balance sheet
	3rd	Methods of determination of B,P., I.P. and F.P.; Simple numerical problems on performance of I.C. engines.
12th	1st	Continue...
	2nd	Problem practice
	3rd	Functions of air compressor; Uses of compressed air; Types of air compressors; Single stage reciprocating air compressor - its construction and working (with line diagram) using P-V diagram;
13th	1st	Continue...
	2nd	Multi stage compressors – Advantages over single stage compressors; Rotary compressors: Centrifugal compressor, axial flow type compressor and vane type compressors.

15th	1st	Continue...
	2nd	Continue...
	3rd	Refrigeration; Refrigerant; COP; Air Refrigeration system: components working & applications..
16th	1st	Vapour Compression system: components, working & applications
	2nd	Continue...
	3rd	
17th	1st	Air conditioning; Classification of Air- conditioning systems
	2nd	Comfort and Industrial Air-Conditioning; Window Air- Conditioner; Summer Air-Conditioning system, Winter Air-Conditioning system, Year-round Air-Conditioning system.
	3rd	revision
18th	1st	revision
	2nd	revision
	3rd	revision

14/07/25

SIGNATURE OF THE FACULTY

14/07/25

SIGNATURE OF H.O.D.