Discipline:	Semester:	Name of the Teaching Faculty:
MECHANICAL	3RD	Er. DEVI PRASAD ACHARYA
Subject:	No. of days/per week class allotted: 4 Periods	Semester From date: 01/10/2021
THERMAL ENGG-1		To date: 18/01/2022
		No of weeks: 15
Week	CLASS DAY	Theory Topics to be covered
1	1st	Introduction class and full syllabus to be read out.
	2nd	Thermodynamic properties of a system (Pressure, volume, temperature and units of measurement)
	3rd	Intensive and extensive properties, State and Process,
	4th	Thermodynamic equilibrium, Quasi-static process
2	1st	Conceptual explanation of energy, work and heat
	2nd	Work transfer,
	3rd	Displacement work,
	4th	Forms of work transfer,
3	1st	Modes of heat transfer
	2nd	(Introductory concepts of conduction, convection and radiation)
	3rd	Sensible and latent heat, specific heat
	4th	Energy and its sources
4	1st	Zeroth Law of thermodynamics, 1st Law of thermodynamics
	2nd	Energy as system property, forms of stored energy
	3rd	Application of 1st law of Thermodynamics
	4th	Numerical on 1st law of Thermodynamics
5	1st	Steady Flow Energy Equation and its application to nozzle turbine and compressor
	2nd	Perpetual motion machine of first kind, Limitations of first law, Thermal reservoir
	3rd	Concept of heat engine, heat pump and refrigerator,
	4th	Statement of Second law of thermodynamics (Clausius and Kelvin Planck), Perpetual motion machine of second kind
6	1st	Concept of Heat Engine, Heat Pump & Refrigerator
	2nd	Application of 2nd law of Thermodynamics to Heat
	3rd	Determination of efficiencies Heat Engine
	4th	Determination of COP of Heat Pump & Refrigerator
7	1st	Boyle's Law, Charle's Law, Avogadro's Law
	2nd	Guy Lussac equation, General Gas equation, Characteristic gas constant, Universal Gas constant
	3rd	Specific Heats (Cp & Cv) & its relation with R

	4th	Enthalpy of a gas, Work done during a non-flow process
8	1st	Application of 1st law of Thermodynamics to various non- flow process. (Isothermal & Isobaric processes)
	2nd	Application of 1st law of Thermodynamics to various non- flow process. (Isothermal & Isobaric processes)
	3rd	Application of 1st law of Thermodynamics to various non- flow process. (Isentropic & Poly-tropic processes)
	4th	Application of 1st law of Thermodynamics to various non- flow process. (Isentropic & Poly-tropic processes)
9	1st	Free Expansion & Throttling Process
	2nd	Free Expansion & Throttling Process
	3rd	Classification of IC Engines
	4th	Terminology of IC Engines
10	1st	Concept of CI & SI Engines
	2nd	Working of 2 Stroke Petrol Engine
	3rd	Working of 4 Stroke Petrol Engine
	4th	Working of 2 Stroke Diesel Engine
11	1st	Working of 4 Stroke Diesel Engine
	2nd	Difference between 2 stroke & 4 stroke CI & SI engines
	3rd	Concept of Air standard cycles
	4th	Concept of Air standard cycles
12	1st	Carnot cycle
	2nd	Numerical on Carnot cycle
	3rd	Otto cycle
	4th	Numerical on Otto cycle
13	1st	Diesel cycle
	2nd	Numerical on Diesel cycle
	3rd	Dual cycle
	4th	Numerical on Dual cycle
14	1st	Fuels & its types
	2nd	Solid Fuels
	3rd	Liquid Fuels
	4th	Gaseous Fuels
15	1st	Application of different types of fuels
	2nd	Heating values of fuels,
	3rd	Quality of IC engine fuels
	4th	Octane number & Cetane number