

DEPARTMENT OF MECHANICAL ENGINEERING

LESSON PLAN

Discipline:- MECHANICAL	Class:3 rd Sem Mech Engg	Name Of Faculty:- Biswajit Mishra
Subject:- Thermal Engg-1	Session: 2023-24	No Of Weeks:-15
No. of week	No. of classes	Topic to be taught
1 st	1	Chapter-1 : Thermodynamic Systems (closed, open, isolated)
	2	Thermodynamic properties of a system (pressure, volume, temperature, entropy, enthalpy, Internal energy)
	3	Intensive and extensive properties, Units, thermodynamic processes
	4	Path, cycle, state,
2 nd	5	path function, point function,
	6	Property diagram
	7	
	8	Thermodynamic Equilibrium
3 rd	9	Chapter-2 Quasi-static Process
	10	Conceptual explanation of energy and its sources
	11	Work, heat and comparison between the two
	12	Zeroth law of thermodynamics
4 th	13	First law of thermodynamics, Limitations
	14	Application of First law of Thermodynamics, steady flow energy equation
	15	Numericals
	16	SFEE application to turbine and compressor
5 th	17	Numericals
	18	Numericals
	19	Second law of thermodynamics (Clausius & Kelvin Planck statements)
	20	Heat engine, heat pump & determination of efficiencies & C.O.P
6 th	21	Numericals
	22	Refrigerator, determination of efficiencies & C.O.P
	23	Numericals
	24	Numericals
7 th	25	Boyle's law, Charle's law, Avogadro's law, Dalton's law of partial pressure
	26	General gas equation, characteristic gas constant, Universal gas constant.
	27	specific heat of gas (Cp and Cv)
	28	Relation between Cp & Cv
8 th	29	Enthalpy of a gas



	30	Numericals
	31	Work done during a non-flow process
	32	Application of first law of thermodynamics to various non flow process (Isothermal, Isobaric, Isentropic and polytrophic process)
9 th	33	Numericals
	34	Free expansion: Numericals
	35	IC Engines: Concept
	36	Terminologies of IC engines
10 th	37	2-stroke/ 4-stroke Engines
	38	SI/ CI engines
	39	Comparison between CI/SI Engines
	40	Comparison between 4-S & 2-S engines
11 th	41	Turbo charged engines (beyond syllabus)
	42	Electric vehicles: Introduction (Beyond syllabus)
	43	AIR STANDARD CYCLES: Introduction
	44	Carnot cycle: Limitations
12 th	45	Otto cycle: efficiency & work done
	46	Numericals on Otto cycle
	47	Diesel cycle: Efficiency & WD
	48	Diesel cycle numericals
13 th	49	Numericals
	50	Dual cycle
	51	Numericals
	52	Ericsson cycle (Beyond syllabus)
14 th	53	Fuels: Definition
	54	Types of fuel: Liquid, solid, gaseous fuel
	55	Application of different fuels
	56	Heating value of fuel: Calorific value, Higher heating value
15 th	57	Octane number, Cetane number
	58	Previous year QA
	59	Previous Year QA
	60	Previous year QA


 19/07/2023
 Lecturer & Head, Mech Engg