GOVT. POLYTECHNIC MAYURBHANJ , TIKARPADA

ACADEMIC SESSION-2023-24 , LESSON PLAN

Discipline : MECHANICAL ENGG.		Semester: 3rd Sem	Name of the Teaching Faculty :SASMITA SAHA
Subject : THERMAL ENGG.-I		No. of Days / per week class allotted : 04	Semester From date : 01/08 /23 To Date : 30/11/23
MONTH	**Week**	**Day**	**Topics**
AUGUST	IST	3rd	**CHAPTER-1 :Thermodynamic concept & Terminology**: Thermodynamic Systems (closed, open, isolated)
		4th	Thermodynamic properties of a system (pressure, volume, temperature}
		5th	entropy, enthalpy, Internal energy and units of measurement.
	2nd	Ist	Intensive and extensive properties Define thermodynamic processes, path,cycle , state.
		3rd	Define thermodynamic processes, path,cycle , state..
		4th	Revision,Path function, point function
		5TH	Thermodynamic Equilibrium
		3rd	Quasi-static Process
		4th	work, its sign convention different types of work.
		5th	Heat, its sign convention.
	4th	1st	comparison between heat and work. Mechanical Equivalent of Heat.
		3rd	Work transfer, Displacement work
		4th	**CHAPTER 2:Laws of Thermodynamics :** State & explain Zeroth law of thermodynamics.
		5th	State & explain First law of thermodynamics.
	5TH	1st	Limitations of First law of thermodynamics
		4th	Application of first lawof thermodynamics (steady flow energy equation)
	Ist	5th	SFEE application to turbine and compressor.

SEPTEMBER	2nd	1st	Solved problems
		4th	Solved problems on SFEE.
		5th	Second law of thermodynamics, TER MER Heat engine
	3rd	1st	Refrigerator, Heat pump. COP
		3rd	Clausius & Kelvin Planck statements
		4th	Application of second law in heat engine, heat pump, refrigerator & determination of efficiencies & C.O.P
		5th	**CLASS TEST-1**
	4th	1st	Solved problems on Heat engine.
		4th	Solved problems on Refrigerator heat pump
		5th	**CHAPTER 3:Properties Processes of perfect gas :** Laws of perfect gas, Boyle's law, Charle's law,
	5TH	1st	Dalton's law of partial pressure, Guy lussac law
		3rd	General gas equation, characteristic gas constant, Universal gas constant
		4th	Explain specific heat of gas (Cp and Cv) Relation between Cp & Cv.
OCTOBER	IST	3rd	Enthalpy of a gas. Work done during a non- flow process
		4th	Application of first law of thermodynamics to various non flow process Isothermal, Isobaric, isochoric process.
		5th	Solved Problems
	2nd	Ist	Isentropic and polytrophic process
		3rd	solved problems
		4th	Free expansion & throttling process
		5th	**INTERNAL EXAMINATION**
	3rd	1st	**CHAPTER 4: Internal combustion engine :** Explain & classify I.C engine.
		3rd	Terminology of I.C Engine such as bore, dead centers, stroke volume, piston speed &RPM
		4th	Explain the working principle of 2-Stroke C I engine.
		5th	Explain the working principle of 2-Stroke S I engine.
		3rd	Explain the working principle of 4 -Stroke petrol engine.

	4th	4th	Explain the working principle of 4 -Stroke diesel engine.
		5th	Difference between petrol engine and diesel engine.
	5TH	1st	Comparision between two stroke engine and four stroke engine.
NOVEMBER	IST	3rd	**CHAPTER 5:Gas Power Cycle:** Introduction of gas power cycle and impotant terms used in gas power cycle.
		4th	Carnot cycle
		5th	simple problem solved on Carnot cycle.
	2nd	1st	Otto Cycle
		3rd	Solved problems on Otto Cycle.
		4th	Diesel cycle
		5th	Solved problems on Diesel Cycle,
	3rd	1st	Dual cycle.
		3rd	simple problem Solved
		4th	Revision .
		5th	**CHAPTER 6:Fuels and Combustion :** Define Fue. Types of fuel
	4th	1st	Application of different types of fuel.
		3rd	Heating values of fuel
		4th	Quality of I.C engine fuels Octane number
		5th	Cetane number
	5TH	3rd	**CLASS TEST-II**
		4th	Revision .