GOVT. POLYTECHNIC MAYURBHANJ , TIKARPADA

ACADEMIC SESSION-2022-23 , 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 : 15/9/22 To Date : 21/1/23
MONTH	**Week**	**Day**	**Topics**
SEPTEMBER	4th	Ist	**CHAPTER-1 :Thermodynamic concept & Terminology**: Thermodynamic Systems (closed, open, isolated)
		2nd	Thermodynamic properties of a system (pressure, volume, temperature}
		3rd	entropy, enthalpy, Internal energy and units of measurement.
		3rd	Intensive and extensive properties Define thermodynamic processes, path,cycle , state.
	5TH	Ist	Define thermodynamic processes, path,cycle , state..
		2nd	Revision,Path function, point function
		3rd	Thermodynamic Equilibrium
		3rd	Quasi-static Process
OCTOBER	Ist	Ist	work, its sign convention different types of work.
	3rd	Ist	Heat, its sign convention.
		2nd	comparison between heat and work. Mechanical Equivalent of Heat.
		3rd	Work transfer, Displacement work
		3rd	**CHAPTER 2:Laws of Thermodynamics :** State & explain Zeroth law of thermodynamics.
	4th	Ist	State & explain First law of thermodynamics.
		2nd	Limitations of First law of thermodynamics
		3rd	solved problems
		3rd	Application of first lawof thermodynamics (steady flow energy equation)
			CLASS TEST-1
		2nd	SFEE application to turbine and compressor.

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

DECEMBER	2nd	3rd	Comparision between two stroke engine and four stroke engine.
		3rd	Revision .
	3rd	Ist	**CHAPTER 5:Gas Power Cycle:** Introduction of gas power cycle and impotant terms used in gas power cycle.
		2nd	Carnot cycle
		3rd	simple problem solved on Carnot cycle.
		3rd	Otto Cycle
	4th	Ist	Solved problems on Otto Cycle.
		2nd	Diesel cycle
		3rd	Revision .
		3rd	Revision .
			INTERNAL EXAMINATION
JANUARY	IST	Ist	Solved problems on Diesel Cycle,
		2nd	Dual cycle.
		3rd	simple problem Solved
		3rd	Revision .
	2nd	Ist	**CHAPTER 6:Fuels and Combustion :** Define Fue. Types of fuel
		2nd	Application of different types of fuel.
		3rd	**CLASS TEST-II**
	3rd	Ist	Heating values of fuel
		2nd	Quality of I.C engine fuels Octane number
		3rd	Cetane number
		3rd	Revision .