

**GOVT. POLYTECHNIC MAYURBHANJ , TIKARPADA**

**ACADEMIC SESSION-2021-22 , LESSON PLAN**

<b>Discipline : MECHANICAL ENGG.</b>		<b>Semester: 3rd Sem</b>	<b>Name of the Teaching Faculty :SASMITA SAHA</b>
<b>Subject : THERMAL ENGG.-I</b>		<b>No. of Days / per week class allotted : 04</b>	<b>Semester From date : 1/10/2021 To Date : 8/1/2022</b>
<b>MONTH</b>	<b>Week</b>	<b>Day</b>	<b>Topics</b>
<b>OCTOBER</b>	<b>1st</b>	5th	<b>CHAPTER-1 :Thermodynamic concept &amp; Terminology:</b> Thermodynamic Systems (closed, open,
	<b>2nd</b>	1st	Thermodynamic properties of a system (pressure, volume, temperature}
		2nd	entropy, enthalpy, Internal energy and units of measurement.
		5th	Intensive and extensive properties Define thermodynamic processes, path,cycle , state.
	<b>4th</b>	5th	Define thermodynamic processes, path,cycle , state..
	<b>5TH</b>	1st	Path function, point function, Thermodynamic Equilibrium
		2nd	Quasi-static Process,work, its sign convention different types of work.
		3rd	Heat, its sign convention.comparison between heat and work. Mechanical Equivalent of Heat.
		5th	Work transfer, Displacement work ,solve problem
	<b>NOVEMBER</b>	<b>1st</b>	1st
2nd			State & explain First law of thermodynamics.
3rd			Limitations of First law of thermodynamics, solved problems
5th			<b>CLASS TEST-1</b>
<b>2nd</b>		1st	Application of first law of thermodynamics ( steady flow energy equation)
		2nd	SFEE application to turbine and compressor.
		3rd	Solved problems
		5th	Solved problems on SFEE.
<b>3rd</b>		1st	Second law of thermodynamics, TER MER Heat engine
		2nd	Refrigerator, Heat pump. COP

		3rd	Solved problems on Heat engine.	
	4th	1st	Clausius & Kelvin Planck statements	
		2nd	Application of second law in heat engine, heat pump, refrigerator & determination of efficiencies & C O P	
		3rd	Solved problems on Refrigerator heat pump	
		5th	<b>CHAPTER 3: Properties Processes of perfect gas :</b> Laws of perfect gas, Boyle's law, Charle's law,	
	5TH	1st	Dalton's law of partial pressure, Guy lussac law	
		2nd	General gas equation, characteristic gas constant, Universal gas constant	
DECEMBER	1st	3rd	Explain specific heat of gas (Cp and Cv) Relation between Cp & Cv.	
		5th	<b>INTERNAL EXAMINATION</b>	
	2nd	1st	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	
		3rd	Isentropic and polytrophic process, Solved Problems	
		5th	Free expansion & throttling process	
	3rd	1st	<b>CHAPTER 4: Internal combustion engine :</b> Explain & classify I.C engine. Terminology of I.C Engine such as bore, dead centers, stroke volume, piston speed & RPM	
		2nd	Terminology of I.C Engine such as bore, dead centers, stroke volume, piston speed & RPM	
		3rd	Explain the working principle of 2-Stroke C I engine and 2-Stroke S I engine.	
		5th	Explain the working principle of 4 -Stroke petrol engine and 4 -Stroke diesel engine.	
	4th	1st	Difference between petrol engine and diesel engine.	
		2nd	Comparison between two stroke engine and four stroke engine.	
		3rd	<b>CHAPTER 5: Gas Power Cycle:</b> Introduction of gas power cycle and important terms used in gas power cycle.	
		5th	Carnot cycle, Otto Cycle	
	5TH	1st	Solved problems on Otto Cycle.	
		2nd	Diesel cycle , Dual cycle.	
		3rd	simple problem Solved	
		5th	<b>CHAPTER 6: Fuels and Combustion :</b> Define Fue. Types of fuel, Application of different types of fuel.	
			1st	Heating values of fuel

JANUARY	IST	2nd	Quality of I.C engine fuels Octane number ,Cetane number
		3rd	Revision .
		5th	<b>CLASS TEST-II</b>