

LESSON PLAN FOR - THERMAL ENGINEERING-I (SESSION :- FEB- JUNE 2023)						
MECHANICAL ENGINEERING (SEMESTER - 4)						
S.NO.	MONTH	WEEK	DATE	CONTENT	REMARKS	
1	Feb	3rd	14,15,17	Basic Concepts and Gas Laws :Gas laws: Boyle's law, Charle's law, Avogadro's Law and Gay Lussacs Law,Characteristics equation, Gas constant, Universal gas constant,Thermodynamics, property (system open and closed), surroundings, Heat and work, specific heats and their relationship.		
		4th	20,21,22,24			
		5th	27,28			
2	March	1st	1,3	Laws of Thermodynamics: Explanation of the Zeroth law of thermodynamics. Explanation of First Law of Thermodynamics,Concept of enthalpy, internal energy, specific heat, work and heat. Clausius and Kelvin Plank statements of second law of thermodynamics,Concept of Entropy,Constant Volume, Constant pressure, Isothermal, adiabatic and polytropic processes, Throttling and Free,Expansion, work done under these processes.		
		2nd	6,7,10			
		3rd	13,14,15,17		CT1	
		4th	20,21,22,24			
3	April	1st, 2nd	3,4,5	Formation of Steam and its Properties: Steam Formation, Wet steam, dry steam and saturated steam; dryness fraction with simple numericals. Super-heated steam; degree of super heat. Latent heat of vaporization,Enthalpy of steam, Entropy; entropy increase during evaporation, Temperature Entropy diagram,Mollier Diagram ( H-S diagram).		
		3rd	10,11,12		CT2	
		4th	17,18,19,21			
4	May	5th	24,25,26,28	Steam Generator: Uses of steam,Classification of boilers, Boiler mounting and accessorie, Comparison of fire tube and water tube boilers.Constructional features of Nestler boiler, Babcock and Wilcox boiler. Introduction to modern boilers		
		1st	1,2,3	Nozzles and Steam Turbines: Energy equation as applied to a nozzle, Introduction to types of turbines		
		2nd	8,9,10,12	House Test		
5	June	3rd	15,16,17,19	Description of various types of turbines,Methods of reducing rotor speed in impulse turbines, Governing of steam turbines		
		4th	23,24,26	Non Conventional Sources Of Energy: Need of non conventional energy sources,Solar Energy, Sun and solar radiation,Solar constant, Solar collectors-flat plate collectors and focusing collectors,Solar heating-solar cooker, solar power generation and Solar cooling,Photo voltaic cells, Industrial and agricultural application of a solar energy, Economic consideration for use of solar energy.Other Non Conventional Energy Sources: Wind Power, Geothermal energy		
		5th	29,30,31			
5	June	1st	2	Elements Of Heat Transfer: Conduction, Convection, Radiation. Stefan Boltzman's law		
		2nd	5,6,7,9			

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