MERI College of Engineering and Technology
(MERI - CET)

Lesson Plan

Name of the Faculty : Mr. Pardeep

Discipline : Mechanical Engineering

Semester : 4th

Subject : Applied Thermodynamics (PCC-ME-202G)

Lesson Plan Duration : 15 Weeks (from May 2021 to August 2021)

** Work Load (Lecture) per week (in hours): Lectures-04, Practicals-01

Week	Theory		Practical	
	Lecture Day	Topic (including assignment/test)	Practical day	Topic
1st	1st	Introduction to solid, liquid and gaseous fuels.	1st	To study low pressure boilers and their accessories and mountings.
	2nd	Stoichiometry.		
	3rd	Exhaust gas analysis.		
	4th	First law analysis of combustion reactions.		
2nd	5th	Heat calculations using enthalpy tables.	2nd	To study high pressure boilers and their accessories and mountings.
	6th	Adiabatic flame Temperature.		
	7th	Chemical equilibrium.		
	8th	Equilibrium composition calculations using free energy.		
3rd	9th	Vapor power cycles.	3rd	To prepare heat balance sheet for given boiler.
	10th	Rankine cycle with superheat.		
	11th	Reheat and regeneration.		

	12th	Exergy analysis.		
4th	13th	Supercritical and ultra super-critical Rankine cycle.	4th	To study the working of impulse and reaction steam turbines.
	14th	Gas power cycles.		
	15th	Air standard Otto, Diesel and Dual cycles.		
	16th	Air standard Brayton cycle.		
5th	17th	Effect of reheat, regeneration and intercooling-	5th	To find dryness fraction of steam by separating and throttling calorimeter.
	18th	Combined gas and vapor power cycles.		
	19th	Vapor compression refrigeration cycles.		
	20th	Refrigerants and their properties.		
6th	21st	Properties of dry and wet air.	6th	To find power out put & efficiency of a steam turbine.
	22nd	Use of pschyrometric chart.		
	23rd	Basics of compressible flow. Stagnation properties.		
	24th	Isentropic flow of a perfect gas through a nozzle.		
7th	25th	Choked flow,	7th	To find the condenser efficiencies.
	26th	Subsonic and supersonic flows- normal shocks.		
	27th	Use of ideal gas tables for isentropic flow.		
	28th	Normal shock flow.		
8th	29th	Flow of steam through nozzle.	8th	To study and find volumetric efficiency of a

	30th	Flow of refrigerant through nozzle.		reciprocating air compressor.
	31st	Super saturation compressible flow in diffusers.		
	32nd	Efficiency of nozzle and diffuser.		
9th	33rd	Reciprocating compressors,	9th	To study cooling tower and find its efficiency.
	34th	Numericals		
	35th	Staging of reciprocating compressors.		
	36th	Numericals.		
10th	37th	Optimal stage pressure ratio.	10th	To find calorific value of a sample of fuel using Bomb calorimeter.
	38th	Numericals.		
	39th	Effect of intercooling.		
	40th	Numericals.		
11th	41st	Minimum work for multistage reciprocating compressors.	11th	Calibration of Thermometers and pressure gauges.
	42nd	Numericals		
	43rd	Numericals		
	44th	Analysis of steam turbines.		
12th	45th	Numericals	12th	Revision.
	46th	Velocity Compounding of Steam Turbines.		
	47th	Pressure compounding of steam turbines.		
	48th	Numericals.		
13th	49th	Numericals.	13th	Revision.
	50th	Revision		
	51st	Revision.		
	52nd	Revision.		
14th	53rd	Revision	14th	Revision.
	54th	Revision		
	55th	Revision.		

	56th	Revision.		
15th	57th	Revision	15th	Revision.
	58th	Revision		
	59th	Revision.		
	60th	Revision.		