

Discipline: <u>Mechanical</u>		Semester: <u>4th</u>	Name of the Teaching Faculty: <u>Jagan Kumar Jena</u>	
Subject: <u>Thermal Engg-II</u>		No of Days/Week Class Allotted: <u>4</u>	Semester From date: <u>10.03.22</u> To date: <u>18.06.22</u>	No. of Weeks: <u>15</u>
WEEK	Class Day	Theory Topics		
1st	1st	Vapour power cycle:- Introduction of Steam Power Plant		
	2nd	Layout diagram of steam power plant and its description.		
	3rd	Continuing steam power plant cycle		
	4th	Introduction of Carnot cycle.		
	5th			
2nd	1st	Carnot cycle description with P-V & T-S diagram		
	2nd	Introduction of Rankine cycle		
	3rd	Rankine cycle description with P-V & T-S diagram.		
	4th	Discussion about modified to Rankine vapour cycles.		
	5th			
3rd	1st	Continuing modification of Rankine vapour cycle		
	2nd	Qualities of ideal working fluid for vapour power cycle.		
	3rd	Binary vapour cycle.		
	4th	Continuing binary vapour cycle.		
	5th			

WEEK	Class Day	Theory Topics
4th	1st	Gas Power cycle:- Introduction of I.C. engine & its function
	2nd	Concept of I.C. engine.
	3rd	Discussion regarding 2-stroke petrol and diesel engine.
	4th	Working principle of 2-stroke petrol and diesel engine.
	5th	
5th	1st	Introduction of 4-stroke petrol and diesel engine.
	2nd	Working principle of 4-stroke petrol and diesel engine.
	3rd	Difference bet ⁿ 2-stroke and 4-stroke engine.
	4th	Working principle of otto cycle.
	5th	
6th	1st	Working principle of diesel cycle.
	2nd	Working principle of dual Combustion cycle.
	3rd	Comparison of otto, Diesel & dual combustion cycle.
	4th	Class test - 1, Question answer discussion of Chapter.
	5th	

Discipline: <u>Mechanical</u>		Semester: <u>4th</u>	Name of the Teaching Faculty: <u>Tapan Kumar Jana</u>	
Subject: <u>Thermal Engg-II</u>		No of Days/Week Class Allotted: <u>4</u>	Semester From date: <u>10.08.22</u> To date: <u>18.06.22</u>	No. of Weeks: <u>15</u>
WEEK	Class Day	Theory Topics		
7th	1st	3. fuels & combustion: - Introduction of fuels & different types of fuel		
	2nd	Introduction of hydrocarbon fuels.		
	3rd	Combustion reaction, Concept of - stoichiometric combustion.		
	4th	Complete combustion & incomplete combustion		
	5th			
8th	1st	Continuing complete combustion and incomplete combustion.		
	2nd	Introduction of enthalpy.		
	3rd	formation of enthalpy		
	4th	Enthalpy of reaction.		
	5th			
9th	1st	Heating values of fuels.		
	2nd	Quality of I.C engine fuels.		
	3rd	Octane number & cetane number.		
	4th	Assignment question and doubt clearing class		
	5th			

WEEK	Class Day	Theory Topics
10 th	1st	4. Heat transfer :- Introduction of heat transfer process
	2nd	Different modes of heat transfer process
	3rd	Fourier law of heat conduction thermal conductivity.
	4th	Steady state heat conduction in solid.
	5th	
11 th	1st	Continuing steady state heat conduction in plane wall.
	2nd	Continuing steady state heat conduction in plane wall.
	3rd	Steady state heat conduction in hollow cylinder.
	4th	Steady state heat conduction in hollow sphere.
	5th	
12 th	1st	Heat transfer through convection modes.
	2nd	Newton's law of cooling.
	3rd	(i) Radiation of heat transfer. (ii) Stefan Boltzmann law
	4th	Theories of Radiation: - (i) Maxwell's theory (ii) Max Planck's theory.
	5th	

Discipline: <u>Mechanical</u>		Semester: <u>4th</u>	Name of the Teaching Faculty: <u>Haran Kumar Jena</u>	
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WEEK	Class Day	Theory Topics		
13th	1st	Theory of radiation: - (1) Black body radiation		
	2nd	Surface absorption, reflection & transmission		
	3rd	Kirchoff's law relating to spectral emissive power to absorptivity.		
	4th	Heat exchangers, concept application and classification.		
	5th			
14th	1st	Class-test-II, Doubt clearing class Assignment question		
	2nd	5. Refrigeration cycle: - Introduction of refrigeration & concept		
	3rd	Introduction of heat pump & concept		
	4th	Reversed Carnot cycle & its limitation.		
	5th			
15th	1st	Ideal vapour compression refrigeration cycle		
	2nd	Actual vapour compression refrigeration cycle.		
	3rd	Gas refrigeration cycle.		
	4th	Important question and previous years question answer discussion.		
	5th			