

LESSONPLAN

DISCIPLINE: Mechanical engineering	Semester: 4TH	Name of the Teaching Faculty: N.BEHERA
Subject : THERMAL ENGINEERING-II	No. of Days / per week class allotted : 4	SemesterFrom date: 16-01-2024 To Date: 26-04-2024 No. of Weeks : 12
Week	Class Day	Topics
1st	1st	<u>PERFORMANCE OF IC ENGINE:</u> Define mechanical efficiency, Indicated thermal efficiency,
	2nd	Relative Efficiency, brake thermal efficiency, overall efficiency
	3rd	Mean effective pressure & specific fuel consumption.
	4th	Define air-fuel ratio & calorific value of fuel.
2nd	1st	problems to determine efficiencies & specific fuel consumption.
	2nd	problems to determine efficiencies & specific fuel consumption.
	3rd	problems to determine efficiencies & specific fuel consumption.
	4th	revision
3rd	1st	<u>AIR COMPRESSOR:</u> Explain functions of compressor & industrial use of compressor air
	2nd	Classification of air compressor
	3rd	principle of operation.
	4th	Describe the parts and working principle of reciprocating Air compressor
4th	1st	Explain the terminology of reciprocating compressors such as bore, stroke, pressure ratio, free air delivered & Volumetric efficiency.
	2nd	Derive the work done of single stage & two stage compressor with and without clearance.
	3rd	Solve simple problems (without clearance only)
	4th	Solve simple problems (without clearance only)

5 th	1st	Solves simple problems (without clearance only)
	2nd	Solves simple problems (without clearance only)
	3rd	revision
	4th	revision
6th	1st	<u>PROPERTY OF STEAM</u> : Difference between gas & vapours.
	2nd	Formation of steam
	3rd	Representation on P-V, T-S, H-S, & T-H diagram.
	4th	Definition & Properties of Steam.
7th	1st	Use of steam table & mollier chart for finding unknown properties
	2nd	Use of steam table & mollier chart for finding unknown properties
	3rd	Non flow & flow processes of vapour
	4th	P-V, T-S & H-S, diagram.
8th	1st	Determine the changes in properties & solve simple numerical
	2nd	Determine the changes in properties & solve simple numerical
	3rd	revision
	4th	revision
9th	1st	<u>STEAM GENERATOR</u> : Classification & types of Boiler
	2nd	Important terms for Boiler
	3rd	Comparison between fire tube & water tube Boiler
	4th	Description & working of common boilers (Cochran, Lancashire)

10th	1st	Description&workingofcommonboilers(Babcock&Wilcox Boiler)
	2nd	BoilerDraught(Forced,induced&balanced)
	3rd	Boilmountings
	4th	Boilmountings
11th	1st	Boileraccessories
	2nd	Boileraccessories
	3rd	revision
	4th	revision
12th	1st	<u>STEAMPOWERCYCLE</u> :Carnotcyclewithvapour
	2nd	Derivework&efficiencyofthecycle.
	3rd	Rankine cycle RepresentationinP-V,T-S&h-sdiagram.
	4th	DeriveWork&Efficiency.
13th	1st	EffectofVariousendconditionsinRankinecycle.
	2nd	Reheatcycle®enerativeCycle.
	3rd	simplenumericalonCarnotvapourCycle&RankineCycle.
	4th	simplenumericalonCarnotvapourCycle&RankineCycle.
14th	1st	<u>HEATTRANSFER</u> :ModesofHeatTransfer(Conduction,Convection, Radiation).
	2nd	Fourierlawofheatconductionandthermalconductivity (k)
	3rd	Newton'slawsofcooling
	4th	Radiationheattransfer(Stefan,Boltzmann)onlystatement
15th	1st	Radiationheattransfer(Kirchhoff'slaw)onlystatement
	2nd	BlackbodyRadiation,DefinitionofEmissivity,absorptivity,&transmissibility.
	3rd	Definitionofabsorptivity,&transmissibility.
	4th	revision