GOVERNMENT POLYTECHNIC, BALASORE

Government of Odisha

ସରକାରୀ ବହୁବୃତ୍ତି ଅନୁଷ୍ଠାନ, ବାଲେଶ୍ଵର

Lesson plan summer - 2023

Discipline :Mechanical engineering	Semester:4th	Name of the Teaching Faculty :Mrutunjay jena
Subject: THERMAL ENGINEERING-II	No of Days /Per week class allotted	Semester from date 14.02.2023 No of week:15
Week	Class day	Theory/Practical topics
1St	1st	UNIT .1-Performanceof I.Cengine 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 & calorificvalue of fuel.
2nd	1st	Workout problems to determine efficiencies.
	2nd	Simple numerical solve.
	3rd	Workout problems to determine specific fuel consumption.
	4th	Simple numerical solve.
3rd	1st	UNIT 2- AirCompressor Introduction.
	2nd	Explain functions of compressor.
	3rd	industrial use of compressor air.
	4th	Classify air compressor.
4th	1st	Principle of operation of compressor.
	2nd	Describe the parts and working principle of reciprocating Air compressor.
	3rd	Numerical on reciprocating compressor.
	4th	Numerical on reciprocating compressor.
5th	1st	Explain the terminology of reciprocating compressor such as bore, stroke pressureratio freeair delivered Volumetricefficiency
	2nd	Simple problems on above.
	3rd	Derive the work done of single stage & two stage compressor with and without clearance.
	4th	Solve simple problems.
6th	1st	Unit 3- Properties of Steam. Difference between gas & vapors.
	2nd	Formation of steam.
	3rd	Representation on P-V,T-S,H-S,&T-H diagram.
	4th	Solve simple problems.
7th	1st	Definition & Properties of Steam.
	2nd	Use of steam table.
	3rd	Solve simple problems.
	4th	Use of mollier chart for finding unknown properties

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8th	1st	Solve simple problems.
	2nd	Non flow & flow process of vapor.
	3rd	P-V,T-S&H-S,diagram.
	4th	Determine the changes in properties &solve simple numerical.
9th	1st	**Unit 4-SteamGenerator.** **Classification&typesofBoiler.**
	2nd	Important terms for Boiler.
	3rd	Comparison between firetube &Watertube Boiler.
	4th	Description & working of common boilers.clasification of boiler.
10th	1st	Cochran boiler.
	2nd	Lancashire boiler.
	3rd	Babcock &WilcoxBoiler.
	4th	Boiler Draught.explain it
11th	1st	Forced BoilerDraught.
	2nd	Induced BoilerDraught.
	3rd	Balanced BoilerDraught.
	4th	Boilermountings &accessories.
12th	1st	**Unit 5- SteamPowerCycles** **Carnot cycle with vapour.**
	2nd	Derive work &efficiency of the cycle.
	3rd	Solve simple problems.
	4th	Rankine cycle.
13th	1st	Derive work &efficiency of the cycle.
	2nd	Solve simple problems.
	3rd	Representation in P-V,T-S & h-s diagram. Derive Work & Efficiency.
	4th	Effect of Various end conditions in Rankine cycle. Reheat cycle &regenerativeCycle.
14th	1st	**UNIT 6 -HeatTransfer.** Modes of HeatTransfer(Conduction,Convection,Radiation).
	2nd	Fourier law of heat conduction and thermal conductivity(k).
	3rd	Solve simple problems.
	4th	Basic concept of natural,forced &damped vibration.
15th	1st	Torsional Vibration.
	2nd	Numerical on it
	3rd	Newton'slawsofcooling. Radiation heat transfer (Stefan, Boltzmann & Kirchhoff's law) only statement.
	4th	Blackbody Radiation,Definition of Emissivity,absorptivity,& transmissibility.

Mautunjaye Sen

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