BLACK DIAMOND SCHOOL OF ENGINEERING, JHARSUGUDA

LESSON PLAN

Session (2022-2023)

Discipline: Electrical Engineering	Semester: 3rd ,Winter/2022	Name of the Teaching Faculty: Ajay Kumar Sahoo Lecturer, Mechanical Engineering
Subject: Elements of Mechanical Engineering, Theory-3	No. of Days/Week: 04	Start Date: 14/09/2022 End Date: 21/01/2023

Week	Class Day	Theory Topics
1st	1st	Define Thermodynamics. Define System, surroundings and boundary. Explain open closed and isolated system.
	2nd	Define Intensive and extensive properties. Differentiate between homogeneous and heterogeneous system.
	3rd	State Unit of Heat and work. 1st law of the thermodynamics.
	4th	State Laws of perfect gases.
2nd	1st	Determine relationship of specific heat of gases at constant volume and constant pressure.
	2nd	Explain the formation of steam and differentiate between gas and vapours.
	3rd	Define pure substance and its phases and explain the phase change phenomena of a pure substance.
	4th	Properties of steam. Wet, dry and superheated steam.
3rd	1st	Explain total heat of wet, dry and superheated steam.
	2nd	Use steam table for solution of simple problem.
	3rd	Class Test/Assignment
	4th	Define Boiler and classification of boiler.
4th	1st	Explain principal part and their function of a boiler.
	2nd	Define characteristic of a good boiler and factor affecting the selection of boiler.
	3rd	Explain the comparison between fire and water tube boiler, about Boiler Mountings and Accessories.
	4th	Description and working of Cochran and Babcock and Wilcox boiler.

5th	1st	Define Steam engine, Classify it, and explain different parts .
	2nd	Explain the working principle of a steam engine.
	3rd	Explain hypothetical indicator diagram of steam engine with and without clearance
	4th	Define actual indicator diagram of a steam engine.
6th	1st	Explain the efficiency of a steam engine.
	2nd	Solve Numerical on efficiency of steam engine
	3rd	Class Test/Assignment
	4th	Explain the working principle of Impulse and reaction turbine
7th	1st	Differentiate between Impulse and reaction turbine
	2nd	Define Condenser and state its function and types.
	3rd	Explain the elements of a condensing plant.
	4th	Explain the working principle of a low level condenser.
8th	1st	Explain the working principle of a high level and ejector jetcondenser.
	2nd	Explain the working principle of shell and tube type surfacecondenser.
	3rd	Class Test/Assignment
	4th	Define & classify I.C engine
9th	1st	Terminology of I.C Engine
	2nd	Explain the working principle of 4-stroke S.I and C.I engine.
	3rd	Explain the working principle of 2-stroke S.I and C.I engine.
	4th	Differentiate between 2-stroke & 4- stroke and S.I or C.Iengine.
10th	1st	Describe properties of fluid.
	2nd	Solve Numerical on Properties of Fluid
	3rd	Explain Pressure measurement and Classification of Pressure measuring devices.
	4th	Define Manometer and use of manometer for pressure measurement.
11th	1st	Solve Numerical on simple Manometer.
	2nd	Solve Numerical on "U" tube Manometer.
	3rd	Determine pressure at a point by using pressure measuring Instruments.
	4th	Explain the Continuity equation.
12th	1st	State and explain Bernoulli's theorem.
	2nd	Solve numerical on Continuity equation
	3rd	Solve numerical on Continuity equation
	4th	Explain Hydraulic Accumulator,

12th	1st	Explain Hydraulic ram and Intensifier	
	2nd	Explain Hydraulic Lift.	
	3rd	Class Test/Assignment	
	4th	*Classroom Problems*	
13th	3rd	*Classroom Problems*	
	4th	*Classroom Problems*	
	1st	*Discussion on Previous year question paper*	
	2nd	*Discussion on Previous year question paper*	