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DEPARTMENT OF MECHANICAL ENGINEERING(2022-2023)

LESSON PLAN

Discipline: Metallurgy	**Semester: 3rd**	**Name of the Teaching faculty: RUTUPARNA SWAIN**
Subject: Elementary Mechanical Engineering	**No of Days/ Week class alloted: 4**	**Semester from Date: 15/09/2022 To Date: 22/12/2022** **No of weeks: 15**
Week	**Class Day**	**Topics**
1st	1st	Define shear force and bending moment.
	2nd	Construct shear force and bending moment diagram of simple supported beam with point load.
	3rd	Construct shear force and bending moment diagram of simple supported beam with uniformly distributed load.
	4th	Construct shear force and bending moment diagram of cantilever beam with point load.
2nd	1st	Construct shear force and bending moment diagram of cantilever beam with point load.
	2nd	Construct shear force and bending moment diagram of simple supported beam with point load and uniformly distributed load.
	3rd	Construct shear force and bending moment diagram of cantilever beam with point load and uniformly distributed load.
	4th	Determine stress of loaded beams.
3rd	1st	Determine stress of loaded beams.
	2nd	Determine stress of loaded beams.
	3rd	Define machine, mechanism, kinematics, link, kinematics pair, kinematics chain.
	4th	Define machine, mechanism, kinematics, link, kinematics pair, kinematics chain.
4th	1st	Define machine, mechanism, kinematics, link, kinematics pair, kinematics chain.
	2nd	Illustrate four – bar linkage, crank – connecting rod, quick return mechanism.
	3rd	Illustrate four – bar linkage, crank – connecting rod, quick return mechanism.
	4th	Illustrate four – bar linkage, crank – connecting rod, quick return mechanism.
5th	1st	Understand function of a cam and cam follower.
	2nd	Understand function of a cam and cam follower.
	3rd	Determine the length of open belt drive.
	4trh	Determine the ratio of tensions and power transmitted by belt drive.
6th	1st	Determine the ratio of tensions and power transmitted by belt drive.
	2nd	Discuss advantage of rope and chain drive.
	3rd	State working principle of simple brake and dynamo meters.
	4trh	State working principle of simple brake and dynamo meters.
7th	1st	Define and classify bearings (bush and anti-friction).
	2nd	Define and classify bearings (bush and anti-friction).
	3rd	Define heat and work and derive inter – relationship.
	4trh	Determine work done by compression and expansion of gases.

8th	1st	Determine work done by compression and expansion of gases.
	2nd	Explain properties of steam (sensible, latent heat & dryness fraction).
	3rd	Discuss use of steam tables.
	4trh	Discuss use of steam tables.
9th	1st	Explain the functions of the boiler.
	2nd	Explain the functions of the boiler.
	3rd	Explain the functions of the boiler.
	4trh	Define fire tube, water tube, boiler.
10th	1st	Define fire tube, water tube, boiler.
	2nd	Define fire tube, water tube, boiler.
	3rd	Define and classify steam turbines (impulse and reaction type and steam condensers).
	4trh	Define and classify steam turbines (impulse and reaction type and steam condensers).
11th	1st	Define and classify steam turbines (impulse and reaction type and steam condensers).
	2nd	Define and classify steam turbines (impulse and reaction type and steam condensers).
	3rd	Define and classify internal combustion (I.C.) engine.
	4trh	Explain Otto and Diesel cycles.
12th	1st	Explain Otto and Diesel cycles.
	2nd	Explain and compare 2 stroke and 4 stroke and I.C. engine.
	3rd	Define Indicate power, brake power and mech, efficient.
	4trh	Define Indicate power, brake power and mech, efficient.
13th	1st	Define Refrigeration and Air – conditioning and state various application.
	2nd	Explain simple vapour compression refrigeration system.
	3rd	Explain simple vapour compression refrigeration system.
	4trh	State types of refrigerants and explain their properties.
14th	1st	Describe the basic concept of air – conditioning with reference to a room air conditioner.
	2nd	Describe the basic concept of air – conditioning with reference to a room air conditioner.
	3rd	Define machine tools.
	4trh	Define machine tools.
15th	1st	Describe different machine tools and their functions (lathe, drill, shaper, milling machine and grinding machine).
	2nd	Describe different machine tools and their functions (lathe, drill, shaper, milling machine and grinding machine).
	3rd	Brief idea on CNC milling and CNC Turning.
	4trh	Brief idea on CNC milling and CNC Turning.

Learning Resources:			
Sl.No	**Title of the Book**	**Name of Authors**	**Name of Publisher**
1.	Strength of material	R.S.Khurmi	S.Chand Publisher
2.	Engineering Thermodynamics	P.L.Ballanney	Khanna Publisher
3.	Refrigeration and Air Conditioning	R.S.Khurmi	S.Chand Publisher
4.	Theory of Machine	R.S.Khurmi	S.Chand Publisher
5.	Basic Mechanical Engineering	Dr.N.R.Banapurma Mr.V.S.Yaliwal	Vikas Publisher

Signature of the faculty