2022-23(S)

LESSON PLAN		
Discipline : Mechanical Engg.	Semester : 4th	Name of the Teachnig Faculty : Mr. Pradeep Kumar Padhy
Subject : Theory Of Machines	No.of days/Per weeks Class Alloted Weeks :4	Semester from date : 14.02.2023 To Date : 23.05.2023 No.of Weeks : 15
Weeks	Class day	Theory
3rd (Feb-2023)	1st	Link ,kinematic chain, mechanism, machine
	2nd	
	3rd	Inversion, four bar link mechanism and its inversion
	4th	
4th (Feb-2023)	1st	
	2nd	Lower pair and higher pair
	3rd	
	4th	Cam and followers
1st (Mar-2023)	1st	
	2nd	Friction between nut and screw for square thread, screw jack
	3rd	
	4th	
2nd (Mar-2023)	1st	Bearing and its classification, Description of roller, needle roller& ball bearings.
	2nd	
	3rd	Torque transmission in flat pivot& conical pivot bearings.
	4th	
3rd(Mar-2023)	1st	
	2nd	Flat collar bearing of single and multiple types.
	3rd	
	4th	Torque transmission for single and multiple clutches
4th (Mar-2023)	1st	
	2nd	
	3rd	Working of simple frictional brakes
	4th	
5th (Mar-2023)	1st	Working of Absorption type of dynamometer
	2nd	Concept of power transmission
	3rd	Type of drives, belt, gear and chain drive.
	4th	Computation of velocity ratio, length of belts (open and cross)with and without slip.
1st (April)-2023)	1st	
	2nd	Ratio of belt tensions, centrifugal tension and initial tension
	3rd	
	4th	
2nd April)-2023)	1st	Power transmitted by the belt.
	2nd	
	3rd	Determine belt thickness and width for given permissible stress for open and crossed belt considering centrifugal tension.
	4th	
3rd (April)-2023)	1st	
	2nd	V-belts and V-belts pulleys
	3rd	Concept of crowning of pulleys.
	4th	Gear drives and its terminology
4th (April)-2023)	1st	Gear trains, working principle of simple, compound, reverted and epicyclic gear trains.

	2nd	Function of governor
	3rd	Classification of governor
	4th	Working of Watt, Porter, Proel and Hartnell governors
1st (May-2023)	1st	Conceptual explanation of sensitivity, stability and isochronisms
	2nd	Function of flywheel
	3rd	Comparison between flywheel &governor.
	4th	Fluctuation of energy and coefficient of fluctuation of speed.
2nd (May-2023)	1st	Concept of static and dynamic balancing
	2nd	Static balancing of rotating parts.
	3rd	Principles of balancing of reciprocating parts
	4th	Causes and effect of unbalance
3rd (May-2023)	1st	Difference between static and dynamic balancing
	2nd	Introduction to Vibration and related terms (Amplitude, time period and frequency, cycle)
	3rd	Classification of vibration
	4th	Basic concept of natural, forced & damped vibration
4th (May-2023)	1st	Torsional and Longitudinal vibration
	2nd	Causes & remedies of vibration.
	3rd	Revision & doubt clear
	4th	Previous Year Question Discussion

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LESSON PLAN		
Discipline : Mechanical Engg.	Semester : 4th	Name of the Teachnig Faculty : Mr. Piyush Bhusan Dash
Subject : Manufacturing Technology	No.of days/Per weeks Class Alloted Weeks :4	Semester from date : 14.02.2023 To Date : 23.05.2023 No.of Weeks : 15
Weeks	Class day	Theory
3rd (Feb-2023)	1st	Composition of various tool materials
	2nd	
	3rd	Physical properties& uses of such tool materials
	4th	
4th (Feb-2023)	1st	Cutting action of various and tools such as Chisel, hacksaw blade, dies and reamer
	2nd	
	3rd	Turning tool geometry and purpose of tool angle
	4th	
1st (Mar-2023)	1st	Machining process parameters (Speed, feed and depth of cut)
	2nd	Coolants and lubricants in machining and purpose
	3rd	Construction and working of lathe and CNC lathe
	4th	
2nd (Mar-2023)	1st	Major components of a lathe and their function
	2nd	
	3rd	Operations carried out in a lathe(Turning, thread cutting, taper turning, internal machining, parting off, facing, knurling)
	4th	
3rd(Mar-2023)	1st	
	2nd	Safety measures during machining
	3rd	Difference with respect to engine lathe
	4th	Major components and their function
4th (Mar-2023)	1st	Multiple tool holders
	2nd	Difference with respect to capstan lathe
	3rd	Major components and their function
	4th	Tooling layout for preparation of a hexagonal bolt &bush
5th (Mar-2023)	1st	Potential application areas of a shaper machine
	2nd	Major components and their function
	3rd	Automatic able feed mechanism
	4th	Construction &working of tool head
1st (April)-2023)	1st	Quick return mechanism
	2nd	Specification of a shaping machine.
	3rd	Application area of a planer and its difference with respect to shaper
	4th	Major components and their functions
2nd April)-2023)	1st	
	2nd	The table drive mechanism
	3rd	Working of tool and tool support
	4th	Clamping of work through sketch
3rd (April)-2023)	1st	Types of milling machine and operations performed by them and also same for CNC milling machine
	2nd	
	3rd	Explain work holding attachment
	4th	Construction & working of simple dividing head, universal dividing head
4th (April)-2023)	1st	
	2nd	

	3rd	Procedure of simple and compound indexing
	4th	Different indexing methods
1st (May-2023)	1st	Major components and their function of a slotter
	2nd	Construction and working of slotter machine
	3rd	Tools used in slotter
	4th	Significance of grinding operations
2nd (May-2023)	1st	Manufacturing of grinding wheels
	2nd	Criteria for selecting of grinding wheels
	3rd	Specification of grinding wheels with example Working of Cylindrical Grinder Surface Grinder Centreless Grinder
	4th	Classification of drilling machines
3rd (May-2023)	1st	Working of Bench drilling machine
	2nd	Basic Principle of Boring Different between Boring and drilling
	3rd	Types of Broaching(pull type, push type) Advantages of Broaching and applications
	4th	Definition of Surface finish
4th (May-2023)	1st	Description of lapping& explain their specific cutting.
	2nd	Revision & Doubt Clear
	3rd	Revision & Doubt Clear
	4th	Previous Year Question Discussion

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LESSON PLAN		
Discipline : Mechanical Engg.	Semester : 4th	Name of the Teachnig Faculty : Mr. Nilamadhaba Sabat
Subject : Fluid Mechanics	No.of days/Per weeks Class Alloted Weeks :4	Semester from date : 14.02.2023 To Date : 23.05.2023 No.of Weeks : 15
Weeks	Class day	Theory
3rd (Feb-2023)	1st	Define fluid,comparison of solid,liquid and gas
	2nd	Description of fluid properties like Density, Specific weight,
	3rd	numericals based on Density, Specific weight
	4th	specific gravity, specific volume
4th (Feb-2023)	1st	numericals based on fluid propertoies
	2nd	numericals based on fluid propertoies
	3rd	Definitions and Units of Dynamic viscosity, kinematic viscosity,
	4th	surface tension
1st (Mar-2023)	1st	numericals based on surface tension
	2nd	Capillary phenomenon
	3rd	numericals based on capillarity
	4th	Definitions and units of fluid pressure
2nd (Mar-2023)	1st	pressure intensity and pressure head
	2nd	Statement of Pascal's Law,applications of pascal law
	3rd	Concept of atmospheric pressure, gauge pressure, vacuum pressure and absolute pressure
	4th	Concept of atmospheric pressure, gauge pressure, vacuum pressure and absolute pressure
3rd(Mar-2023)	1st	Pressure measuring instruments,classification
	2nd	Simple Manometers
	3rd	numericals on Simple Manometers
	4th	Differential manometer
4th (Mar-2023)	1st	numericals on differential Manometers
	2nd	Bourdon tube pressure gauge
	3rd	Bourdon tube pressure gauge numericals
	4th	Definition of hydrostatic pressure , Total pressure and centre of pressure
5th (Mar-2023)	1st	Total pressure and centre of pressure
	2nd	Total pressure and centre of pressure on immersed bodies(Horizontal and Vertical Bodies)
	3rd	numericals based on total pressure and center of pressure
	4th	numericals based on total pressure and center of pressure
1st (April)-2023)	1st	Archimedes 'principle
	2nd	concept of buoyancy
	3rd	meta center and meta centric height
	4th	Concept of floatation
2nd April)-2023)	1st	Continuity equation(Statement and proof for one dimensional flow)
	2nd	Bernoulli's theorem(Statement) and total energy concept
	3rd	proof of Bernoulli's theorem
	4th	numericals based on Bernoulli's theorem
3rd (April)-2023)	1st	numericals based on Bernoulli's theorem
	2nd	numericals based on Bernoulli's theorem
	3rd	venturimeter
	4th	numericals on(Venturimeter)
4th (April)-2023)	1st	pitot tube

	2nd	numericals on pitot tube
	3rd	Define orifice and Flow through orifice
	4th	Orifices coefficient & the relation between the orifice coefficients
1st (May-2023)	1st	problems on Orifices coefficient & the relation between the orifice coefficients
	2nd	Classifications of notches & weirs
	3rd	Discharge over a rectangular notch or weir
	4th	numericals on rectangular notch
2nd (May-2023)	1st	Discharge over a triangular notch or weir
	2nd	numericals on triangular notch
	3rd	Definition of pipe, Loss of energy in pipes.
	4th	type of Head loss, Head loss due to friction:, Darcy's formula
3rd (May-2023)	1st	numericals on Darcy's formula
	2nd	Chezy's formula., numericals on Chezy's formula.
	3rd	Hydraulic gradient and total gradient line
	4th	Impact of jet:Impact of jet on fixed & moving vertical flat plates
4th (May-2023)	1st	Derivation of work done on series of vanes
	2nd	condition for maximum efficiency.
	3rd	Impact of jet on moving curved vanes, illustration using velocity triangles,
	4th	derivation of work done, efficiency

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LESSON PLAN		
Discipline : Mechanical Engg.	Semester : 4th	Name of the Teachnig Faculty : Miss. Tapati Panigrahy
Subject : Thermal Engineering-II	No.of days/Per weeks Class Alloted Weeks :4	Semester from date : 14.02.2023 To Date : 23.05.2023 No.of Weeks : 15
Weeks	Class day	Theory
3rd (Feb-2023)	1st	Mechanical efficiency, Indicated thermal efficiency, Relative Efficiency, brake thermal efficiency overall efficiency Mean effective pressure &specific fuel consumption
	2nd	
	3rd	
	4th	
4th (Feb-2023)	1st	Define air-fuel ratio & calorific value of fuel
	2nd	problems to determine efficiencies & specific fuel consumption
	3rd	
	4th	
1st (Mar-2023)	1st	Functions of compressor & industrial use of compressor air
	2nd	
	3rd	Classification of air compressor & principle of operation
	4th	
2nd (Mar-2023)	1st	
	2nd	Parts and working principle of reciprocating Air compressor.
	3rd	Terminology of reciprocating compressor such as bore, stroke, pressure ratio free air delivered &Volumetric efficiency.
	4th	
3rd(Mar-2023)	1st	Work done of single stage & two stage compressor with and without clearance.
	2nd	
	3rd	
	4th	
4th (Mar-2023)	1st	Problems solved
	2nd	
	3rd	
	4th	Difference between gas & vapours.
5th (Mar-2023)	1st	Formation of steam.
	2nd	Representation on P-V, T-S, H-S, & T-H diagram
	3rd	
	4th	Definition & Properties of Steam.
1st (April)-2023)	1st	Use of steam table & mollier chart for finding unknown properties
	2nd	Non flow & flow process of vapour
	3rd	
	4th	P-V, T-S & H-S, diagram
2nd April)-2023)	1st	
	2nd	
	3rd	Changes in properties
	4th	Problems solved
3rd (April)-2023)	1st	
	2nd	Classification & types of Boiler
	3rd	Important terms for Boiler
	4th	Comparison between fire tube & Water tube Boiler

4th (April)-2023)	1st	Description & working of common boilers (Cochran, Lancashire, Babcock & Wilcox Boiler)
	2nd	
	3rd	
	4th	Boiler Draught (Forced, induced & balanced)
1st (May-2023)	1st	Boiler mountings & accessories
	2nd	Carnot cycle with vapour
	3rd	Derivation of work & efficiency of the cycle
	4th	
2nd (May-2023)	1st	Rankine cycle---Representation in P-V, T-S & h-s diagram.
	2nd	Derivation of Work Efficiency
	3rd	Effect of Various end conditions in Rankine cycle
	4th	Reheat cycle & regenerative Cycle
3rd (May-2023)	1st	Problem solved on Carnot vapour Cycle & Rankine Cycle
	2nd	Modes of Heat Transfer (Conduction, Convection, Radiation).
	3rd	Fourier law of heat conduction and thermal conductivity (k).
	4th	Newton's laws of cooling
4th (May-2023)	1st	Radiation heat transfer (Stefan, Boltzmann & Kirchhoff's law)
	2nd	Black body Radiation, Definition of Emissivity, absorptivity, & transmissibility
	3rd	Revision & doubt clear
	4th	Previous Year Question Discussion

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