		vedang institute of lechnology
		Lesson Plan
Discipline: Mechanical Engg.	Semester : 4th	Name of the Teaching Faculty: Samresh Pratap Mohanty
Subject : Theory of Machines	No. of days/Per weeks Class Allotted Weeks :4	Semester from date : 16/01/2024 to 26/04/2024 No. of Weeks : 15
Weeks	Class day	Theory
	1 <sup>st</sup>	Link ,kinematic chain, mechanism, machine
1 st	2 <sup>nd</sup>	Link ,kinematic chain, mechanism, machine
1	3 <sup>rd</sup>	Inversion, four bar link mechanism and its inversion
	4 <sup>th</sup>	Inversion, four bar link mechanism and its inversion
and	1 <sup>st</sup>	Inversion, four bar link mechanism and its inversion
2	2 <sup>nd</sup>	Lower pair and higher pair
-	ord	
	3	Cam and followers
	4 <sup>th</sup>	Cam and followers
	1 st	
	2 nd	Friction between nut and screw for square thread, screw jack
	2	Friction between nut and screw for square thread, screw jack
3 <sup>rd</sup>	3 <sup>rd</sup>	Bearing and its classification, Description of roller, needle roller& ball bearing
	4 <sup>th</sup>	Bearing and its classification, Description of roller, needle roller& ball bearing
	1 <sup>st</sup>	Torque transmission in flat pivot& conical pivot bearings.
4 <sup>th</sup>	2 <sup>nd</sup>	Flat collar bearing of single and multiple types.
	3 <sup>rd</sup>	Torque transmission for single and multiple clutches
	4 <sup>th</sup>	Torque transmission for single and multiple clutches
	1 <sup>st</sup>	Working of simple frictional brakes
5 <sup>th</sup>	2 <sup>nd</sup>	Working of simple frictional brakes
	3 <sup>rd</sup> -	Working of Absorption type of dynamometer
	4 <sup>th</sup> .	Concept of power transmission
	1 <sup>st</sup>	Type of drives, belt, gear and chain drive.
6 <sup>th</sup>	2 <sup>nd</sup>	Computation of velocity ratio, length of belts (open and cross) with and without slip.
	3 <sup>rd</sup>	Ratio of belt tensions, centrifugal tension and initial tension
	4 <sup>th</sup>	Ratio of belt tensions, centrifugal tension and initial tension
	1 <sup>st</sup>	Power transmitted by the belt.
	2 <sup>nd</sup>	Determine belt thickness and width for given permissible stress for open
7 <sup>th</sup>	-	and crossed belt considering centrifugal tension.
	3 <sup>rd</sup>	Determine belt thickness and width for given permissible stress for open
		and crossed belt considering centrifugal tension
4	4 <sup>th</sup>	V-belts and V-belts pulleys
1 8 <sup>th</sup> 3	1 <sup>st</sup>	Concept of crowning of pulleys.
	2 <sup>nd</sup>	Gear drives and its terminology Gear trains, working principle of simple, compound, reverted and epicyclic gea trains.
	3rd	Gear trains, working principle of simple, compound, reverted and epicyclic gea trains.
	L <sup>th</sup>	Function of governor & Classification of governor
1	st	Working of Watt governors
9 <sup>th</sup> 2	nd	Working of Proel governors

100	4 <sup>th</sup>	Concepotual explanation of sensitivity, stability and insochronisms
10 <sup>th</sup>	1 <sup>st</sup>	Concepotual explanation of sensitivity, stability and insochronisms
	2 <sup>nd</sup>	Function of flywheel
	3 <sup>rd</sup>	Comparison between flywheel & governor
	4 <sup>th</sup>	Fluctuation of energy and coefficient of fluctuation of speed
	1 <sup>st</sup>	Concept of static and dynamic balancing
	2 <sup>nd</sup>	Static balancing of rotating parts.
11 <sup>th</sup>	3 <sup>rd</sup>	Static balancing of rotating parts.
	4 <sup>th</sup>	Principles of balancing of reciprocating parts
	1 <sup>st</sup>	Principles of balancing of reciprocating parts
12 <sup>th</sup>	2 <sup>nd</sup>	Caues and effect of unbalance
	3 <sup>rd</sup>	Caues and effect of unbalance
	4 <sup>th</sup>	Difference between static and dynamic balancing
	1 <sup>st</sup>	Introduction to Vibration and related terms (Amplitude, time period and frequency, cycle)
13'''	2 <sup>nd</sup>	Introduction to Vibration and related terms (Amplitude, time paried and
	3 <sup>rd</sup>	Classification of viration
	4 <sup>th</sup>	Classification of viration
14 <sup>th</sup>	1 <sup>st</sup>	Basic concept of natural, forced & damped vibration
	2 <sup>nd</sup>	Torsinal and Longitudinal vibration Conceptual explanation of sensitivity,
	3 <sup>rd</sup>	Torsinal and Longitudinal vibration Conceptual explanation of sensitivity,
	4 <sup>th</sup>	Causes & remedies of vibration
	1 <sup>st</sup>	Revision and Doubt Clearence
-th	2 <sup>nd</sup>	Revision and Doubt Clearance
5	3 <sup>rd</sup>	Revision and Doubt Clearance
	1 <sup>th</sup>	Devision and Doubt Clearance

Samarcesh Prcatate Mohanty Faculty Signature

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Discipline: Mechanical Engg	Semester : 4th	Name of the Teaching Faculty : Samresh Pratap Mohanty		
Subject : Fluid Mechanics	No. of days/Per weeks Class Allotted Weeks :4	Semester from date : 16/01/2024 to 26/04/2024 No. of Weeks: 15		
Weeks	Class Days	Theory		
	1 <sup>st</sup>	Define fluid, comparison of solid, liquid and gas		
1 <sup>st</sup>	2nd	Description of fluid properties like Density, Specific weight,		
	3rd	Numerical based on Density, Specific weight		
	4th	Specific gravity, specific volume		
	1 <sup>st</sup>	Numerical based on fluid properties		
2 <sup>nd</sup>	2nd	Definitions and Units of Dynamic viscosity, kinematic viscosity,		
	3rd	Surface tension		
	4th	Numerical based on surface tension		
and the second se	1 <sup>st</sup>	Capillary phenomenon		
ard	2nd	Numerical based on capillarity		
3	3rd	Definitions and units of fluid pressure		
	4th	Pressure intensity and pressure head		
	1 <sup>st</sup>	Statement of Pascal's Law, applications of Pascal law		
	2nd	Concept of atmospheric pressure, gauge pressure, vacuum pressure and absolute pressure		
4 <sup>th</sup>	3rd	Concept of atmospheric pressure, gauge pressure, vacuum pressure and absolute pressure		
	4th	Pressure measuring instruments, classification		
	1st	Simple Manometers		
- th	2nd	Numerical on Simple Manometers		
· ·	3rd	Differential manometer		
	4th	Numerical on differential Manometers		
	1st	Bourdon tube pressure gauge		
	2nd	Bourdon tube pressure gauge numerical		
6 <sup>th</sup>	3rd	Definition of hydrostatic pressure , Total pressure and centre of pressure		
	4th	Total pressure and centre of pressure		
	1st	Total pressure and centre of pressure on immersed bodies(Horizontal and Vertical Bodies)		
7 <sup>th</sup>	2nd	Definitions and Units of Dynamic viscosity, kinematic viscosity,		
	3 <sup>rd</sup>	Surface tension		
	4 <sup>th</sup>	Numerical based on surface tension		
oth	1st	Capillary phenomenon		
0	and	Numerical based on canillarity		

	3rd	Definitions and units of fluid pressure
	04h	Pressure intensity and pressure head
	4th	Statement of Pascal's Law, applications of Pascal law
	150	Concept of atmospheric pressure, gauge pressure,
	2nd	vacuum pressure and absolute pressure
th	3rd	Concept of atmospheric pressure, gauge pressure,
		Pressure measuring instruments, classification
		Simple Manometers
	4th	Numerical on Simple Manometers
	1	Differential manometer
	lst	Numerical on differential Manometers
	2nd	Rourdon tube pressure gauge
		Bourdon tube pressure gauge numerical
Oth	3rd	Bourdon tube pressure gauge numerica
		Definition of hydrostatic pressure Total pressure and
	4th	centre of prossure Total pressure and centre of
		centre of pressure rotal pressure and centre of
		Tetel pressure and centre of pressure on immersed
	1st	Total pressure and centre of pressure on minister
		Dodies(Horizontal and Vertical Bodies)
	2nd	Orifices coefficient & the relation between the orifice
11 <sup>th</sup>		coefficients
		Problems on Ornices coefficient & the
	3rd	relation between the orifice coefficients
	Ath	Classifications of notches & weirs
	1ct	Discharge over a rectangular notch or weir
	2nd	Numerical on rectangular notch
anth	2rd	Discharge over a triangular notch or weir
12		Numerical on rectangular notch
	4(1)	Definition of pipe
	15t	Loss of energy in pipes.
a oth	200	Type of Head loss
13"	3rd	Head loss due to friction:
	4th	Darcy's formula
14 <sup>th</sup>	lst	Numerical on Darcy's formula
	Znd	Chozy's formula
	3rd	Numerical on Chezy's formula
	4th	Hudraulic gradient and total gradient line
	1st	Impact of jot on fixed vertical flat nlates
	2nd	Impact of jet on fixed vertical flat plates
15 <sup>th</sup>	3rd	Impact of jet on lixed vertical hat plates
	4th	Derivation of work done on series of valles

Samarcesh Boatap Mohanty Faculty Signature

	Vedan	g Institute of Technology
	t.	LESSON PLAN
Discipline: Mechanical Engg.	Semester : 4th	Name of the Teaching Faculty : Kunipriya Bhoi
Subject : Manufacturing Technology	No. of days/Per weeks Class Allotted Weeks :4	Semester from date : 16/01/2024 to 26/04/2024 No. of Weeks: 15
Weeks	Class Days	Theory
	1 <sup>st</sup>	Composition of various tool materials
1 st	2 <sup>nd</sup>	
1	3 <sup>rd</sup>	Physical properties& uses of such tool materials
	4 <sup>th</sup>	
	1 <sup>st</sup>	Cutting action of various and tools such as Chisel, hacksaw blade,
2 <sup>nd</sup>	2"	
-	3 <sup>rd</sup>	Turning tool geometry and purpose of tool angle
	4 <sup>th</sup>	Mechining process parameters(Speed, feed and depth of cut)
	1 <sup>st</sup>	Coolants and lubricants in Machining and Purpose
	2 <sup>nd</sup>	Construction and working of lathe and CNC lathe
3 <sup>rd</sup>	3 <sup>rd</sup>	Major components of lathe and their function
3	4 <sup>th</sup>	Operations carried out in a lathe(Turning, thread cutting, taper turning, internal machining, parting off, facing, knurling)
<u></u>	1 <sup>st</sup>	Safety measures during machining
	2 <sup>nd</sup>	Capstan Lathe Difference with respect to engine lathe
4 <sup>th</sup>	3 <sup>rd</sup>	Major components and their function, Multiple tool holders
	4 <sup>th</sup>	Turret Lathe Difference with respect to capstan lathe
	1 <sup>st</sup>	Major components and their function
	2 <sup>nd</sup>	Major components and their function
5 <sup>th</sup> -	3 <sup>rd</sup>	Shaper Potential application areas of a shaper machine
•	4 <sup>th</sup>	Major components and their function
	1 <sup>st</sup>	Tooling layout for preparation of a hexagonal bolt & bush
	2 <sup>nd</sup>	Automatic cable feed mechanism
6 <sup>th</sup>	3 <sup>rd</sup>	Construction & working of tool head
	1 <sup>th</sup>	Application area of a planer and its difference with respect to shaper
	1 <sup>st</sup>	Clamping of Work through sketch
7 <sup>th</sup>	2 <sup>nd</sup>	Major components and their functions
	3 <sup>rd</sup>	Working of tool and tool support
	4 <sup>th</sup>	Working of tool and tool support
	1 <sup>st</sup>	Clamping of work through sketch
8 <sup>th</sup>	2 <sup>nd</sup>	Types of milling machine and operations performed by them and also same for CNC milling machine
	3 <sup>rd</sup>	Explain work holding attachment

	4 <sup>th</sup>	Explain work holding attachment
9 <sup>th</sup>	1 <sup>st</sup>	Construction & working of simple dividing head, universal dividing head
	2 <sup>nd</sup>	Construction & working of simple dividing head, universal dividing head
	3 <sup>rd</sup>	Procedure of simple and compound indexing
	4 <sup>th</sup>	Illustration of different indexing methods
	1 <sup>st</sup>	Illustration of different indexing methods
toth	2 <sup>nd</sup>	Major components and their function of a slotter
10	3 <sup>rd</sup>	Major components and their function of a slotter
	4 <sup>th</sup>	Construction and working of slotter machine
	1 <sup>st</sup>	Construction and working of slotter machine
a a th	2 <sup>nd</sup>	Tools used in slotter
11	3 <sup>rd</sup>	Explain work holding attachment
	4 <sup>th</sup>	Significance of grinding operations
	1 <sup>st</sup>	Manufacturing of grinding wheels
	2 <sup>nd</sup>	Criteria for selecting of grinding wheels
12 <sup>th</sup>	3 <sup>rd</sup>	Specification of grinding wheels with example Working of: Cylindrical Grinder Surface Grinder Centreless Grinder
	4 <sup>th</sup>	Classification of drilling machines
	1 <sup>st</sup>	Working of Bench drilling machine
13 <sup>th</sup>	2 <sup>nd</sup>	Working of Bench drilling machine Pillar drilling machine
10	3 <sup>rd</sup>	Basic Principle of Boring Different between Boring and drilling
	4 <sup>th</sup>	Basic Principle of Boring Different between Boring and drilling
14 <sup>th</sup> -	1 <sup>st</sup>	Types of Broaching(pull type, push type) Advantages of Broaching and applications
	2 <sup>nd</sup>	Types of Broaching(pull type, push type) Advantages of Broaching and applications
•	3 <sup>rd</sup>	Definition of Surface finish
	4 <sup>th</sup>	Description of lapping& explain their specific cutting.
	1 <sup>st</sup>	Description of lapping& explain their specific cutting.
15 <sup>th</sup>	2 <sup>nd</sup>	Revision & Doubt Clear
	3 <sup>rd</sup>	Question Discussion
	4 <sup>th</sup>	Question Discussion
	4 <sup>th</sup>	

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Faculty Signature

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		vedang Institute of Technology	
		Lesson Plan	
Discipline : Mechanical Engineering	Semester : 4th	Name of the Teachnig Faculty: Soumya Ranjan Nayak	
Subject : Thermal Engineering-II	No.of days/Per weeks Class Alloted Weeks :4	Semester from date : 16/01/2024 to 26/04/2024 No of Weeks: 15	
Weeks	Class day	Theory	
I <sup>st</sup>	1st	Mechanical efficiency, Indicated thermal efficiency, Relative Efficiency, brake thermal efficiency overall efficiency Mean effective pressure & specific fuel consumption	
	2nd	Mechanical efficiency, Indicated thermal efficiency, Relative Efficiency, brake thermal efficiency overall efficiency Mean effective pressure &specific fuel consumption	
	3rd	Mechanical efficiency, Indicated thermal efficiency, Relative Efficiency, brake thermal efficiency overall efficiency Mean effective pressure &specific fuel consumption	
	4th	Define air-fuel ratio & calorific value of fuel	
	1st	Define air-fuel ratio & calorific value of fuel	
$2^{nd}$	2nd	Workout problems to determine efficiencies & specific fuel consumptio	
	3rd	Workout problems to determine efficiencies & specific fuel consumption	
	4th	Problem Solving	
	1st	Functions of compressor & industrial use of compressor air	
3 <sup>rd</sup>	2nd	Functions of compressor & industrial use of compressor air	
	3rd	Classification of air compressor & principle of operation	
	4th	Classification of air compressor & principle of operation	
	1st	Parts and working principle of reciprocating Air compressor.	
	2nd	Terminology of reciprocating compressor such as bore, stroke, pressure ratio free air delivered &Volumetric efficiency.	
4 <sup>th</sup>	3rð	Terminology of reciprocating compressor such as bore, stroke, pressure ratio free air delivered &Volumetric efficiency.	
4	4th	Work done of single stage & two stage compressor with and without clearance.	
	1st	Work done of single stage & two stage compressor with and without clearance.	
5 <sup>th</sup>	2nd	Problems solving	
	Brd	Problems solving	
	1th	Difference between gas & vapours.	
1	lst	Formation of steam.	
6 <sup>th</sup>	2nd	Representation on P-V, T-S, H-S, & T-H diagram	
3	Brd	Representation on P-V, T-S, H-S, & T-H diagram	
4	Ith	Definition & Properties of Steam.	
1	st	Definition & Properties of Steam.	
7 <sup>th</sup> 2	Ind	Use of steam table & mollier chart for finding unknown properties	
3	Brd	Use of steam table & mollier chart for finding unknown properties	
4 oth	th	Non flow & flow process of vapour	
8 1	st	Non flow & flow process of vapour	

	2nd	P-V, T-S & H-S, diagram, Determine the Changes in properties
	3rd	Problems solved
	4th	Steam Generation Classification & types of Boiler
9 <sup>th</sup>	1st	Classification & types of Boiler
	2nd	Important terms for Boiler
	2110	Comparison between fire tube & Water tube Boiler
	3rd	Description & working of common boilers (Cochran, Lancashire, Babcock
		& Wilcox Boller)
	4th	& Wilcox Boiler)
		Description & working of common boilers (Cochran, Lancashire, Babcock
	1st	& Wilcox Boiler)
$10^{\text{th}}$	2nd	Boiler Draught (Forced, Induced & Balanced)
	3rd	Boiler Draught (Forced, Induced & Balanced)
724	4th	Boiler Moutings & Accessories
	1st	Boiler Moutings & Accessories
	2nd	Boiler Moutings & Accessories
11 <sup>th</sup>	3rd	Problems solved
	4+1-	Steam Power Cycle
	4th	Carnot cycle with vapour
	1st	Derivation of work & efficiency of the cycle
	2nd	Rankine cycle – Representation in P-V, T-S & h-s diagram
$12^{\text{th}}$	3rd	Derivation of Work Efficiency
	4th	Effect of Various end conditions in Rankine cycle
	1st	Reheat cycle & regenerative Cycle
	2nd	Problem solved on Carnot vapour Cycle & Rankine Cycle
1.2 th	3rd	Problem solved on Carnot vapour Cycle & Rankine Cycle
13	4+1-	Heat Transfer
	4th	Modes of Heat Transfer (Conduction, Convection, Radiation)
	1st	Fourier law of heat conduction and thermal conductivity (k).
	- 2nd	Newton's laws of cooling
$14^{th}$	•3rd	Radiation heat transfer (Stefan, Boltzmann & Kirchhoff's law)
	4th	Radiation heat transfer (Stefan, Boltzmann & Kirchhoff's law)
	1st	Black body Radiation, Definition of Emissivity, absorptivity, & transmissibility
15 <sup>th</sup>	2nd	Black body Radiation, Definition of Emissivity, absorptivity, & transmissibility
	3rd	Revision & Doubt Clearance
	4th	Revision & Doubt Clearance

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