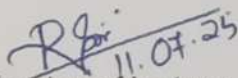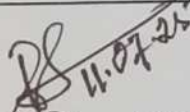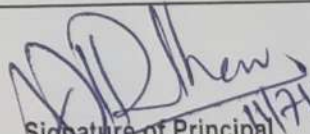## PNS SCHOOL OF ENGINEERING & TECHNOLOGY, MARSHAGHAI, KENDRAPARA
LESSON PLAN

Discipline : Mechanical	Semester:3RD	Name of the Teaching Faculty : Er.RAMAKANT SWAIN	
Subject : FM&FP(TH-4)	No. of Days / per week class allotted : 4	Semester From date : 14.07.2025 to Date :15.11.2025 Weesks : 15	No. of

Week	Class Day	Topics
1st	1st	CH-1 PROPERTIES OF A FLUID AND HYDROSTATICS: Definition of a fluid,classification of fluids
	2nd	density, specific weight, specific gravity & their unit
	3rd	viscosity and surface tension and state the units
	4th	fluid pressure, total pressure (hydrostatic force)
2nd	1st	location of centre of pressure on vertical, horizontal ,inclined and curved surfaces by fluid
	2nd	working of various measuring devices for pressure
	3rd	principle of manometers of simple , differential and inverted types
	4th	NUMERICALS SOLVED
3rd	1st	principle of buoyancy and floatation
	2nd	NUMERICALS SOLVED
	3rd	NUMERICALS SOLVED
	4th	NUMERICALS SOLVED
4th	1st	Simple numericals on Manometer.
	2nd	Simple numericals on Manometer.
	3rd	CH-2 KINEMATICS AND DYNAMICS OF FLUID MECHANICS
	4th	Various types of flow, circulation and vorticity
5th	1st	stream-line, path line and streak-line
	2nd	various energies of fluid,
	3rd	law of conservation of mass, energy equation -
	4th	Bernoulli's theorem, the limitations of same-application of Bernoulli's equation
6th	1st	the working of venturimeter, pitot tube
	2nd	equation of flow rate and velocity with respect to venturimeter and pitot tube
	3rd	NUMERICALS SOLVED
	4th	NUMERICALS SOLVED
7th	1st	the working of flowmeter: current meter
	2nd	NUMERICALS SOLVED
	3rd	NUMERICALS SOLVED
	4th	NUMERICALS SOLVED
8th	1st	CH-3 FLOW THROUGH ORIFICES AND NOTCHES, PIPES: Definition –orifice,orifice coefficient such as Cc, Cv, Cd,
	2nd	Relationship between orifice coefficients, weir and notch
	3rd	Relationship between orifice coefficients, weir and notch
	4th	NUMERICALS SOLVED
9th	1st	Discharge over rectangular notch and weir,
	2nd	Discharge over triangular notch
	3rd	NUMERICALS SOLVED
	4th	NUMERICALS SOLVED

10th	1st	NUMERICALS SOLVED
	2nd	**CH-4 Turbines and Pumps: Classification of hydraulic turbines**
	3rd	Selection of turbine on the basis of head and discharge available
	4th	Construction and working principle of Pelton wheel
11th	1st	Construction and working principle of FRANCIS TURBINE
	2nd	Construction and working principle of KAPLAN TURBINE
	3rd	Draft tubes – types and construction
	4th	Concept of cavitation in turbines
12th	1st	Calculation of Work done, Power, efficiency of turbines
	2nd	NUMERICALS SOLVED
	3rd	Centrifugal Pumps: Principle of working and applications, Types of casings and impellers, Concept of multistage, Priming and its methods, Manometric head
	4th	Work done, Manometric efficiency, Overall efficiency. Simple numerical
13th	1st	Reciprocating Pumps: Construction, working principle and applications of single and double acting reciprocating pumps,
	2nd	Concept of Slip, Negative slip, Cavitation and separation. Simple numericals
	3rd	**CH-5 FLUID POWER:** Definition of fluid power, classification
	4th	hydraulic power and pneumatic power, Hydraulic Systems
14th	1st	Air Compressors: Functions of air compressor; Uses of compressed air; Types of air
	2nd	Basic principle of enclosed hydraulic system
	3rd	Pascal's law, Oil hydraulic system – reservoir
	4th	filter pressure limiting valves, direction control valves,
15th	1st	flow control valves, actuators (linear and rotary), accumulator, pipes and fittings,
	2nd	various positive displacement pumps-gear, vane, piston, drawing of hydraulic circuits - extension and retraction of linear actuator
	3rd	motion of rotary actuator, holding a job, hydraulic presS
	4th	REVIEW

11.07.25

Signature of Lecturer

11.07.25

Signature of H.O.D

Signature of Principal