

DHABALESWAR INSTITUTE OF POLYTECHNIC

LESSON PLAN

Discipline: MECH	Semester: 4TH	Name of the Teaching Faculty S. K. Senapati
Subject: Fluid Mechanics (T.B.)	No. of days per week Class Allotted: 5	Semester from Dt. 14.02.2023 to Dt. 23.05.2023 No. of Weeks: 15
Week	Class Day	Theory / Practical Topics
1st	1st day	1.0 Properties of fluid
	2nd day	1.1 Define fluid 1.2 Description of Fluid Properties like Density, Sp. Weight, Sp. gravity, Sp. volume and solve simple Problem.
	3rd day	1.3 Definition & units of Dynamic Viscosity, Kinematic Viscosity, Surface tension, Capillary Phenomenon.
2nd	1st day	2.0 Fluid Pressure and its measurement
	2nd day	2.1 Definitions and units of fluid Pressure, Pressure intensity & Pressure head.
	3rd day	2.2 State Pascal's law. 2.3 Concept of Atmospheric Pressure, Gauge Pressure, Vacuum Pressure & absolute Pressure.
	4th day	2.4 Pressure measuring instruments Manometer (Simple & Differential) 2.4.1 Bourdon tube Pressure gauge (Simple Numerical)

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3rd	5th day.	2.5. Solve Simple Problems on Manometer.
	1st day	3.0 Hydrostatics
	2nd day	3.1. Definition of hydrostatic Pressure
4th	3rd	3.2 Total Pressure and Centre of Pressure on immersed bodies (Horizontal & Vertical Bodies)
	1st	3.3. Solve Simple Problems
	2nd	3.4 Archimedes' Principle, Concept of buoyancy, meta center and meta centric height (only definition)
5th	3rd	3.5 Concept of floatation.
	1st	4.0 Kinematics of Flow
	2nd	4.1 Types of fluid flow.
6th	3rd	4.2 Continuity equation (Statement and Proof for one dimensional flow)
	4th	4.3 Bernoulli's theorem (State & Proof)
	5th	

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7th	1st	Application & Limitations of Bernoulli's theorem.
	2nd	
	3rd	4.4 Solve Simple Problems.
	4th	
	5th	
8th	1st	5.0 Orifices, notches and Weirs
	2nd	5.1 Define orifice
	3rd	5.2 Flow through orifice
9th	1st	5.3 Orifices Co-efficient & the relation between the orifice Co-efficients.
	2nd	
	3rd	
	4th	5.4 Classifications of notches & Weirs.
10th	1st	5.5 Discharge over a rectangular notch on Weir.
	2nd	5.6 Discharge over a triangular notch on Weir.
	3rd	5.7 Simple Problem on above
11th	1st	6.0 flow through pipes
	2nd	6.1 Define Pipe.
	3rd	6.2 Loss of energy in pipes
	4th	6.3 Head loss due to friction
	5th	- Darcy's & Chezy's Formula (Expression only)

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12th	1st	6.4 Solve Problems using Darcy's & Chezy's Formula
	2nd	
	3rd	
	4th	
	5th	
13th	1st	6.5 Hydraulic gradient & total gradient line.
	2nd	7.0 Impact of Jets
	3rd	
	4th	
14th	1st	7.1 Impact of Jet on fixed and moving vertical flat plate
	2nd	7.2 Derivation of Workdone on series of Vanes and condition for maximum efficiency.
	3rd	
	4th	
	5th	
15th	1st	7.3 Impact of Jet on moving Curved Vanes, illustration using Velocity triangles, derivation of Workdone, efficiency.
	2nd	