KIIT POLYTECHNIC, BHUBANESWAR

LESSON PLAN

Session (2022-2023)

Discipline:	Semester:	Name of the Teaching Faculty:
Mechanical Engineering	4th, Summer /2023	Rabi Sankar Pattanaik
		Lecturer
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Subject:	**No. of Days/Week:** 04	**Start Date:** 13/02/2023
Fluid Mechanics,		**End Date:** 23/05/2023
Theory-03		

Week	Class Day	Theory/Practical Topics
1st	1st	**Properties of fluid**: Definition and units of fluid properties like density, specific weight, specific volume and specific gravity.
	2nd	Numerical
	3rd	Definition and units of fluid properties such as viscosity, kinematic viscosity.
	4th	surface tension and capillarity
2nd	1st	**Fluid pressure and its measurements** Definitions and units of fluid pressure, pressure intensity and pressure head. Pascal's Law.
	2nd	Concepts of atmospheric, gauge, vacuum and absolute pressure.
	3rd	Pressure Measuring instruments: Manometers (simple, differential and piezometers),
	4th	Numerical
3rd	1st	Numerical
	2nd	Mechanical Gauges (Bourdon's tube pressure gauge)
	3rd	*Doubt clearing Class*
	4th	*Assignment Evaluation / Class Test*
4th	1st	**Hydrostatics** Definition of hydrostatic pressure, total pressure and centre of pressure.

	2nd	Total pressure and centre of pressure of immersed horizontal bodies
	3rd	Total pressure and centre of pressure of immersed vertical bodies
	4th	Numerical
5th	1st	Concept of flotation, buoyancy, centre of buoyancy, Archimedes principle
	2nd	Metacentre and metacentric height
	3rd	Numerical
	4th	*Doubt clearing Class*
6th	1st	*Quiz Test*
	2nd	**Kinematics of Flow** Types of fluid flow
	3rd	Continuity equation (statement and proof), Numerical
	4th	Numerical
7th	1st	State and Prove Bernoulli's equation,
	2nd	Limitations of Bernoulli's theorm
	3rd	Numerical
	4th	Practical applications of Bernoulli's equation: Venturi meter and Pitot tube.
8th	1st	Numerical
	2nd	*Doubt Clearing class*
	3rd	*Assignment Evaluation / Class Test*
	4th	**Orifices, notches & weirs** Definition of Orifice, Types
9th	1st	Orifice co-efficient and relation among them.
	2nd	Definition of notch and weir, Classifications of notches & weirs
	3rd	Discharge over a rectangular notch or weir.
	4th	Discharge over a triangular notch or weir
10th	1st	Numerical
	2nd	Numerical
	3rd	*Doubt Clearing Class*
	4th	**Flow through pipe:** Darcy-Weisbach formula, Numerical
11th	1st	Chezy's formula for loss of head due to friction in pipes. Numerical
	2nd	Pipe losses, Hydraulic Gradient, Total Energy Line.
	3rd	Numerical
	4th	*Doubt Clearing Class*

12th	1st	*Assignment Evaluation / Class Test*
	2nd	**Impact of jets** Force exerted by the Impact of jet on a stationary vertical plate
	3rd	Numerical
	4th	Force exerted by a jet on a moving Vertical flat plate,
13th	1st	Numerical
	2nd	Derivation of work done on series of vanes and condition for maximum efficiency.
	3rd	Numerical
	4th	Impact of jet on moving curved vanes, illustration using velocity triangles, derivation of work done, efficiency.
14th	1st	Numerical
	2nd	*Assignment Evaluation / Class Test*
	3rd	*Doubt Clearing Class*
	4th	*Practice test*
15th	1st	*Practice test*
	2nd	*Revision*
	3rd	*Revision*
	4th	*Discussion of previous year questions*

Signature of Concerned Teacher   **HoD**

Department of

Mechanical Engineering