

GOVERNMENT POLYTECHNIC KENDRAPARA

LESSON PLAN-4TH SEMESTER
MECHANICAL (2025 summer)

SESSION-2024-2025

Subject- Fluid mechanics (TH-3)

Name of the Faculty- SRI ASHOK KUMAR BISWAL

MONT H	CHAPTER /UNIT	COURSE TO BE COVERED	CLASSES REQUIRED	REMARKS (IF ANY)
	Unit-1	Properties of Fluid	08	
	1.1	Define fluid	01	
	1.2	Description of fluid properties like Density, Specific weight, specific gravity, specific volume and solve simple problems.	03	
	1.3	Definitions and Units of Dynamic viscosity, kinematic viscosity, surface tension Capillary phenomenon	04	
	Unit-2	Fluid Pressure and its measurements	08	
	2.1	Definitions and units of fluid pressure, pressure intensity and pressure head.	02	
	2.2	Statement of Pascal's Law.	01	
	2.3	Concept of atmospheric pressure, gauge pressure, vacuum pressure and absolute pressure	01	
	2.4	Pressure measuring instruments Manometers (Simple and Differential)	02	
	2.4.1	Bourdon tube pressure gauge(Simple Numerical)	01	
	2.5	Solve simple problems on Manometer.	01	
	Unit-3	Hydrostatics	08	
	3.1	Definition of hydrostatic pressure	01	
	3.2	Total pressure and centre of pressure on immersed bodies(Horizontal and Vertical Bodies)	02	
	3.3	Solve Simple problems.	02	
	3.4	Archimedes principle, concept of buoyancy, meta center and meta centric height (Definition only)	02	
	3.5	Concept of floatation	01	
	Unit-4	Kinematics of Flow	08	
	4.1	Types of fluid flow	01	
	4.2	Continuity equation(Statement and proof for one dimensional flow)	02	
	4.3	Bernoulli's theorem(Statement and proof) Applications and limitations of Bernoulli's theorem(Venturimeter, pitot tube)	03	
	4.4	Solve simple problems	02	
	Unit-5	Orifices, notches & weirs	08	
	5.1	Define orifice	01	
	5.2	Flow through orifice	01	
	5.3	Orifices coefficient & the relation between the orifice coefficients	01	
	5.4	Classifications of notches & weirs	01	
	5.5	Discharge over a rectangular notch or weir	01	
	5.6	Discharge over a triangular notch or weir	01	
	5.7	Simple problems on above	02	
	Unit-6	Flow through pipe	10	
	6.1	Definition of pipe.	01	

	6.2	Loss of energy in pipes.	02	
	6.3	Head loss due to friction: Darcy's and Chezy's formula (Expression only)	03	
	6.4	Solve Problems using Darcy's and Chezy's formula.	03	
	6.5	Hydraulic gradient and total gradient line	01	
	Unit-7	Impact of jets	10	
	7.1	Impact of jet on fixed and moving vertical flat plates	03	
	7.2	Derivation of work done on series of vanes and condition for maximum efficiency.	02	
	7.3	Impact of jet on moving curved vanes, illustration using velocity triangles, derivation of work done, efficiency.	05	



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