

# Synergy School of Engineering, Dhenkanal

## LESSON PLAN

Semester - 2023-24 (S)

Discipline: Mechanical Engineering	Semester: 4 <sup>TH</sup>	Name of the Teaching Faculty: Mihir Kumar Swain
Subject: Fluid Mechanics (TH 3)	No. Of Days/ Per week Class Allotted: 04	Semester From Date: 16/01/24 to 26/04/24 No. Of weeks: 15
Week	Class Day	Topic to be taught (Theory)
1st	1	Define fluid, Description of fluid properties like Density, Specific weight, specific gravity, specific volume
	2	Solve simple problems.
	3	Solve simple problems.
	4	Definitions and Units of Dynamic viscosity, kinematic viscosity,
2nd	5	Solve simple problems.
	6	solve simple problems
	7	surface tension, Capillary phenomenon
	8	solve simple problems
3rd	9	Definitions and units of fluid pressure, Statement of Pascal's Law, Proof, pressure intensity and pressure head,
	10	Concept of atmospheric pressure, gauge pressure, vacuum pressure and absolute pressure
	11	Solve simple problems
	12	Simple Manometers
4th	13	Solve simple problems
	14	Differential Manometers
	15	Solve simple problems
	16	Bourdon tube pressure gauge (Simple Numerical)
5th	17	Definition of hydrostatic pressure, force & its concept
	18	Total pressure and centre of pressure on immersed bodies (Horizontal)
	19	Total pressure and centre of pressure on immersed bodies (Vertical Bodies)
	20	Solve Simple problems
6th	21	Solve Simple problems
	22	Solve Simple problems
	23	Archimedes' principle, concept of buoyancy, meta center and meta centric

		height(Definition only)
	24	Concept of floatation
7th	25	Meaning of Kinematics of Flow , Types of fluid flow
	26	Continuity equation(Statement and proof for one dimensional flow)
	27	4.3 Bernoulli's theorem(Statement and proof)
	28	Applications and limitations of Bernoulli's theorem to (Venturimeter)
	29	Applications and limitations of Bernoulli's theorem to (pitot tube)
8th	30	Solve simple problems
	31	Solve simple problems
	32	Solve simple problems
	33	Define orifice, notches & weirs
9th	34	Flow through orifice, Orifices coefficient & the relation between the orifice coefficient
	35	Solve simple problems
	36	Classifications of notches & weirs
	37	Discharge over a rectangular notch or weir
10th	38	Discharge over a triangular notch or weir
	39	Simple problems on above
	40	Simple problems on above
	41	Definition of pipe. Loss of energy in pipes.
11th	42	Simple problems on above
	43	Head loss due to friction: Darcy's and Chezy's formula (Expression only)
	44	Simple problems on above
	45	Simple problems on above
12th	46	Simple problems on above
	47	Hydraulic gradient and total gradient line
	48	Simple problems on above
	49	Simple problems on above
13th	50	Simple problems on above
	51	Impact of jet on fixed vertical flat plates
	52	Simple problems on above
	53	Impact of jet on moving vertical flat plates
14th	54	Simple problems on above
	55	Derivation of work done on series of vanes and condition for maximum efficiency
	56	Simple problems on above
	57	Impact of jet on moving curved vanes
15th	58	Simple problems on above
	59	Illustration using velocity triangles, derivation of work done, efficiency.

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Simple problems solved

Mt. S. S. S.  
12/1/24

12/1/2024

prepared BY.