

PADMASHREE KRUTARTHA ACHARYA INSTITUTE OF ENGINEERING & TECHNOLOGY, BARGARH



LESSON PLAN Session-2022-2023

Discipline: MECHANICAL Engg. Semester: 4th

Name of the Teaching Faculty: AMIT KUMAR KAR

Subject: FMNo. of Days/per week class allotted 4Semester From Date : 14/02/23 To Date : 23/05/23 No. of Weeks : 15

Week	Class Day	Theory /Practical Topics
01	1	Definitation and types of fluids (Introduction)
	2	Description of fluid properties - Density, Specific weight etc.
	3	fluid properties - Specific gravity, Specific volume, related problems
	4	Solve simple problems on fluid-properties.
02	1	Definitions and units of Dynamic-viscosity, Newton's law of viscosity
	2	Definition and unit of Kinematic-viscosity
	3	Description of surface tension and its unit (droplets, jet etc.)
	4	Surface tension and Capillary rise or fall phenomenon.
03	1	fluid pressure, pressure intensity and pressure head concept
	2	Statement of Pascal's law and its importance
	3	Atmospheric pressure, Gauge pressure its units and comparison.
	4	Vacuum pressure and absolute-pressure

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Week	Class Day	Theory /Practical Topics
04	1	fluid pressure measuring instruments (Introduction)
	2	Simple Manometers, Sample problem discussions
	3	Differential Manometers, Simple - Numericals
	4	Bourdon Tube Pressure Gauge, related figure, principle.
05	1	Solve simple problems on manometers from previous year question paper
	2	Hydrostatic law (definition) and pressure concept.
	3	Total pressure and centre of pressure on immersed bodies
	4	Pressure on Horizontal immersed bodies or surfaces,
06	1	Total pressure and centre of pressure on vertical bodies or surfaces.
	2	Solve simple problems related to total pressure and centre of pressure
	3	Archimede's Principle and Buoyancy concept
	4	Meta-center and meta-centric height of floating bodies

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07	1	concept of floatation
	2	Conditions of stability of floating and submerged bodies
	3	Kinematics of flow (introduction)
	4	Types of flow (introduction)
08	1	Types of fluid flow (Continue)
	2	Statement and continuity equation
	3	Bernoulli's theorem
	4	Application of Bernoulli's theorem
09	1	Pitot tube
	2	Venturimeter
	3	Orifice meter
	4	flow through pipes

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Week	Class Day	Theory /Practical Topics
10	1	Orifice coefficient
	2	Classification of notches / weirs
	3	Rectangular Notch, weirs
	4	Q/A discussion
11	1	Triangular Notch, weir
	2	Simple problems
	3	Simple problems on orifice coeff. and their relations
	4	Q/A discussion
12	1	Flow through pipes (introduction)
	2	Loss of energy in pipes
	3	Darcy's formula
	4	Chezy's formula

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Week	Class Day	Theory /Practical Topics
13	1	Solve problems (on losses in pipes)
	2	HGL - Hydraulic Gradient Line
	3	TEL - Total Energy Line
	4	Group discussion
14	1	Impact of jet on fixed flat plates
	2	Impact of jet on moving plates (vertical)
	3	Derivation of work done on series of vanes
	4	Condition for maximum efficiency of moving plates ; impact of jets.
15	1	Impact of jet on moving curved - vanes
	2	velocity triangles inlet / outlet of vanes
	3	Derivation of work done / efficiency of moving curved vanes
	4	Sample question paper discussion

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