LESSONPLAN

Discipline:Mechanical Engg.	Semester:4ᵗʰSem	Name of the TeachingFaculty: Suprava Behera	
Subject:Fluid Mechanics	No.of Days/Week Class Allotted	Semester From Date: 16.01.24 No.of Weeks: 15	To Date:26.04.24
Week	**Class/Day**	**TheoryTopics**	
1st	1st	**Properties of fluid(Ch.1)** – Definition of fluid and description of fluid properties like density and specific weight.	
	2nd	Description of fluid properties like specific gravity, specific volume	
	3rd	Numericals on density and specific weight	
	4th	Numericals on specific gravity, specific volume	
2nd	1st	Definitions and units of Viscosity, Dynamic viscosity, kinematic viscosity and solve related problems.	
	2nd	Definitions and units of Surface tension, Capillary phenomenon	
	3rd	Numericals on Surface tension and Capillary phenomenon	
	4th	Assignment evaluation/class test	
3rd	1st	**Fluid pressure and its measurements (Ch.2)** – Definition and units of fluid pressure, pressure intensity and pressure head	
	2nd	Statement of Pascal's law and numericals on pressure head	
	3rd	Concepts of atmospheric pressure, gauge pressure, vacuum pressure and absolutepressure and solve related problems.	
	4th	Pressure Measuring instruments:Manometers(simple, differential)	
4th	1st	Numericals on Simple U-tube manometer and Single column manometer	
	2nd	Numericals on U-tube differential manometer	
	3rd	Numericals on Inverted U-tube differential manometer	
	4th	Bourdon tube pressure gauge and solve simple related problems.	
5th	1st	**Hydrostatics (Ch.3)** –Definition of hydrostatic pressure, total pressure and centre of pressure.	
	2nd	Total pressure and centre of pressure of immersed horizontalbodies	
	3rd	Numericals on total pressure and centre of pressure of immersed horizontalbodies	
	4th	Total pressure and centre of pressure of immersed vertical bodies	
6th	1st	Numericals on total pressure and centre of pressure of immersed verticalbodies	
	2nd	Archimedes principle,Concept of flotation,definitions of buoyancy,centre of buoyancy.	
	3rd	Meta centre and meta centric height, Concept of flotation and numericals on Meta centre and meta centric height	

	4th	Review class/ Assignment evaluation
7th	1st	**Kinematics of Flow(Ch.4)** –Types of fluid flow
	2nd	Continuity equation(statement and proof),Numerical on continuity equation
	3rd	Statement and Proof of Bernoulli'sequation
	4th	Application of Bernoulli's theorm (Venturi meter)and Limitations
8th	1st	Numericals on Venturimeter
	2nd	Application of Bernoulli's theorm (Pitot tube)
	3rd	Numericals on Pitot tube
	4th	Review class/ Assignment evaluation
9th	1st	**Orifices,notches& weirs(Ch.5)** –Definition of Orifice and flow through orifice
	2nd	Orifice co-efficient and relation between them.
	3rd	Definition of notch and weir and classification
	4th	Discharge over a rectangular notch or weir.
10th	1st	Numericals on rectangular notch or weir.
	2nd	Discharge over a triangular notch or weir.
	3rd	Numericals on a triangular notch or weir.
	4th	Assignment evaluation/ Class test
11th	1st	**Flow through pipe (Ch.6)** –Definitions of pipe and loss of energy in pipes.
	2nd	Head loss due to friction: Expressions of Darcy's formula
	3rd	Numericals on Darcy's formula
	4th	Expressions of Chezy's formula
12th	1st	Numericals on Chezy's formula
	2nd	Hydraulic Gradient,Total EnergyLine.
	3rd	Numericals on Hydraulic Gradient, Total Energy Line and assignment evaluation
	4th	Solve probable numericals on Darcy's formula and Chezy's formula
13th	1st	Solve probable numericals on Hydraulic Gradient, Total Energy Line
	2nd	Review class
	3rd	**Impact of jets (Ch.7)** –Impact of jet on fixed vertical flat plate
	4th	Numericals onfixed vertical flat plate
14th	1st	Impact of jet on moving vertical flat plate
	2nd	Numericals onmoving vertical flat plate

	3rd	Derivation of workdone on series of vanes and condition For maximum efficiency.
	4th	Numericals on series of vanes
15th	1st	Impact of jet on moving curved vanes, illustration using velocity triangles, derivation of workdone, efficiency.
	2nd	Numericals on series of moving curved vanes
	3rd	Discussion of previous year questions
	4th	Discussion of Semester probable questions

Belex 13.01.2024

Signature of the Faculty