

DHABALESWAR INSTITUTE OF POLYTECHNIC
Department of Mechanical Engineering
Lesson Plan w.e.f 10.03.2022 – 30.06.2022

Subject: Fluid Mechanics			
Discipline: Mechanical Engineering		Name of the Faculty: S K SENAPATI	
Course Code:	TH.3	Semester:	4th
Total Periods:	60	Examination:	2022(Summer)
Theory Periods:	4P/W	Class Test:	20
Maximum Marks:	100	End Semester Examination:	80

Week	Class Day	Theory Topics
1st	1 st	Chapter 1: Properties of Fluid : Define fluid, Description of fluid properties like Density, Specific weight, specific gravity, specific volume
	2 nd	Simple Numerical problems
	3 rd	Types of fluid, Newton's law of viscosity
	4 th	Definitions and Units of Dynamic viscosity, kinematic viscosity
2nd	1 st	Numerical Problems
	2 nd	Surface tension Capillary phenomenon
	3 rd	Numerical Problems
	4 th	Assignment 1
3rd	1 st	Chapter 2: Fluid Pressure and its measurements Definitions and units of fluid pressure, pressure intensity and pressure head.
	2 nd	Statement of Pascal's Law
	3 rd	Concept of atmospheric pressure, gauge pressure, vacuum pressure and absolute pressure
	4 th	Pressure measuring instruments Manometers (Simple and Differential)
4th	1 st	Bourdon tube pressure gauge(Simple Numerical)
	2 nd	Solve simple problems on Manometer
	3 rd	Solve simple problems on Manometer
	4 th	Assignment 2
5th	1 st	Chapter 3: Hydrostatics , Definition of hydrostatic pressure
	2 nd	Total pressure and centre of pressure on immersed bodies(Horizontal)
	3 rd	Total pressure and centre of pressure on immersed bodies(Vertical)
	4 th	Solve Simple problems
6th	1 st	Archimedes 'principle, concept of buoyancy, meta center and meta centric height (Definition only)
	2 nd	Concept of floatation

	4 th	Assignment 3
7 th	1 st	Chapter 4: Kinematics of Flow, Types of fluid flow
	2 nd	Continuity equation(Statement and proof for one dimensional flow)
	3 rd	Numerical problems
	4 th	Bernoulli's theorem(Statement and proof)
8 th	1 st	Applications and limitations of Bernoulli's theorem (Venturimeter)
	2 nd	Applications and limitations of Bernoulli's theorem (pitot tube)
	3 rd	Numerical problems
	4 th	Assignment 4
9 th	1 st	Chapter 5: Orifices, notches & weirs, Define orifice, Flow through orifice
	2 nd	Orifices coefficient & the relation between the orifice coefficients
	3 rd	Numerical problems
	4 th	Classifications of notches & weirs
10 th	1 st	Discharge over a rectangular notch or weir
	2 nd	Discharge over a triangular notch or weir
	3 rd	Numerical problems
	4 th	Assignment 5
11 th	1 st	Chapter 6: Flow through pipe, Definition of pipe. Loss of energy in pipes.
	2 nd	Head loss due to friction: Darcy's formula
	3 rd	Head loss due to friction: Chezy's formula
	4 th	Numerical Problems using Darcy's and Chezy's formula
12 th	1 st	Numerical Problems using Darcy's and Chezy's formula
	2 nd	Numerical Problems using Darcy's and Chezy's formula
	3 rd	Numerical Problems using Darcy's and Chezy's formula
	4 th	Numerical Problems using Darcy's and Chezy's formula
13 th	1 st	Numerical Problems using Darcy's and Chezy's formula
	2 nd	Assignment 6
	3 rd	Chapter 7: Impact of jets, Impact of jet on fixed vertical flat plates
	4 th	Impact of jet on moving vertical flat plates
14 th	1 st	Derivation of work done on series of vanes and condition for maximum efficiency
	2 nd	Impact of jet on moving curved vanes, illustration using velocity triangles
	3 rd	Derivation of work done, efficiency
	4 th	Numerical problems
15 th	1 st	Numerical problems
	2 nd	Numerical problems
	3 rd	Numerical problems
	4 th	Assignment 7