

Discipline : MECHANICALENGG	Semester : 4TH	Name of the Teaching Faculty: R. R. Lenka
Subject: FLUID MECHANICS (Th-3)	No. of days/per week class allotted: 04	Semester From date: 10.03.2022 ToDate: 10.06.2022 No. of Weeks: 15
Week	Class Day	Theory / Practical Topics
1 ST	1 ST	1.0 Properties of Fluid Introduction about fluid mechanics and hydraulic Machines.
	2 ND	Define Fluid, Examples of fluid, Properties of fluid.
	3 RD	Definitions and Units of Density, Specific weight, specific gravity
	4 TH	Simple problem solved
2 ND	1 ST	Definitions and Units of specific gravity, specific Volume, solving of simple problems.
	2 ND	Definitions and Units of Dynamic viscosity, kinematic Viscosity.
	3 RD	Definitions and Units of surface tension, Capillary Phenomenon, Examples of capillary action
	4 TH	Application of capillary action and simple problem solved
3 RD	1 ST	2.0 Fluid Pressure and its Measurements Definitions and units of fluid pressure, pressure intensity and pressure head, Statement of Pascal Law
	2 ND	Concept of atmospheric pressure, gauge pressure Concept of vacuum pressure and absolute pressure, and their relationship
	3 RD	Describe about v a r i o u s Pressure measuring instruments and their application.
	4 TH	Describe about Manometers: Simple and differential
4 TH	1 ST	Describe about Bourdon tube pressure gauge
	2 ND	Simple problems of Simple and differential manometer
	3 RD	Simple problems of Bourdon tube pressure gauge, Simple numerical problems.
	4 TH	Solving of Simple problems on Manometer
5 TH	1 ST	3.0 Hydrostatics Definition of hydrostatic pressure
	2 ND	Discuss about Total pressure and center of pressure on immersed bodies (Horizontal and Vertical Bodies)
	3 RD	Simple Numerical problem solved of Total pressure and center of pressure on immersed bodies.
	4 TH	Discuss about Archimedes' principle
6 TH	1 ST	Discuss about concept of buoyancy,
	2 ND	discuss about metacenter, Discuss about metacentric height
	3 RD	Discuss about the Concept of floatation
	4 TH	Concept of floatation, Flotation of Bodies Examples, simple Problems solved. Q&A discussion As per SCTE&VT Exam

7 TH	1 ST	4.0 Kinematics of Flow Define fluid flow and Types of fluid flow
	2 ND	Discuss about Continuity equation (Statement and proof for one dimensional flow)
	3 RD	State & proof Bernoulli's theorem
	4 TH	Applications and limitations of Bernoulli's theorem
8 TH	1 ST	Discuss about Venturi meter, Application and limitations
	2 ND	Simple numerical solved
	3 RD	Discuss about pitot tube and its application
	4 TH	Simple numerical solved
9 TH	1 ST	5.0 Orifices, Notches & Weirs Definition of orifices, Flow through orifices
	2 ND	Orifice coefficients
	3 RD	Discuss Cc, Cv, Cd and relation among them
	4 TH	Classification of notches and weirs
10 TH	1 ST	Discharge over a rectangular notch or weir
	2 ND	Discharge over a triangular notch or weir
	3 RD	Simple problem solved on rectangular notch
	4 TH	Simple problem solved on triangular notch
11 th	1 ST	6.0 Flow through Pipes Definition of pipe, Discuss Flow through pipe
	2 ND	Loss of Energy in pipes
	3 RD	Define laws of fluid friction
	4 TH	Head loss due to friction: Darcy's formula
12 th	1 ST	Continued
	2 ND	Head loss due to friction: Chezy's formula
	3 RD	Continued
	4 TH	Problem solved using Darcy's Formula
13 th	1 ST	Problem solved using Chezy's Formula
	2 ND	Define Hydraulic gradient, Define total gradient line
	3 RD	7.0 Impact of Jets Define impact of jets
	4 TH	Discuss about various types of impact of jets
14 th	1 ST	Discuss about Impact of jet on fixed and moving vertical flat plates
	2 ND	Discuss about derivation of work done on series of vanes
	3 RD	Discuss about condition for maximum efficiency
	4 TH	Discuss about Impact of jet on moving curved vanes
15 th	1 ST	Discuss about illustration using velocity triangles
	2 ND	Discuss about derivation of work done, efficiency
	3 RD	Problem solved as per SCTE&VT question paper
	4 TH	Problem solved, Revision of previous chapter

Learning Resources:

Text	Title of Book	Author
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Books:

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| <ul style="list-style-type: none"> ➤ Fluid Mechanics and Hydraulic Machines ➤ Text Book of Fluid Mechanics ➤ Text Book of Fluid Mechanics | <ul style="list-style-type: none"> R .K. Bansal R.S. Khurmi R.K. Rajput |
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Reference	Hydraulics, Fluid mechanics and Fluid machines Hydraulics and fluid mechanics including hydraulic machines	S Ramanurathan Modi and Seth
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Fluid mechanics and hydraulic machines	A.R. Basu
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