4th SEMESTER-2020-21

SUBJECT-FLUID MECHANICS (TH-3)TOTAL PERIODS-60
BRANCH-MECHANICAL ENGINEERING.
Shri Samir Ranjan Behera **THEORY-4P/WEEK**

Sl No.	week	Day	Topics to be covered
1	1st	1st day	Define fluid and its types.
		2nd day	Description of fluid properties like Density, Specific weight.
		3rd day	specific gravity, specific volume and solve simple problems.
		4th day	Introduction to viscosity.
2	2nd	1st day	Newton's law of viscosity.
		2nd day	Dynamic viscosity
		3rd day	Kinematic viscosity and capillarity.
		4th day	Concept of surface tension.
3	3rd	1st day	Definitions and units of fluid pressure, pressure intensity and pressure head.
		2nd day	Statement of Pascal's Law.
		3rd day	Concept of atmospheric pressure, gauge pressure.
		4th day	vacuum pressure and absolute pressure.
4	4th	1st day	Pressure measuring instruments. Simple manometer.
		2nd day	Differential manometer.
		3rd day	Bourdon tube pressure gauge(Simple Numerical).
		4th day	Solve simple problems on Manometer.
5	5th	1st day	Definition of hydrostatic pressure.
		2nd day	Concept of total pressure and centre of pressure.
		3rd day	Total pressure and centre of pressure on immersed bodies(Horizontal and Vertical Bodies).
		4th day	Solve Simple problems.
6	6th	1st day	Archimede's principle.

		2nd day	concept of buoyancy.
		3rd day	meta center and meta centric height (Definition only).
		4th day	Concept of floatation.
7	7th	1st day	Kinematic of flow. Types of fluid flow.
		2nd day	Steady & unsteady, uniform & non uniform, laminar & turbulent flow
		3rd day	Continuity equation.
		4th day	Statement and proof for one dimensional flow.
8	8th	1st day	Bernoulli's theorem.
		2nd day	Proof of Bernoulli's theorem.
		3rd day	Applications and limitations of Bernoulli's theorem (Venturimeter, pitot tube).
		4th day	Solve simple problems.
9	9th	1st day	Define orifice .Flow through orifice.
		2nd day	Orifices coefficient & the relation between the orifice coefficients.
		3rd day	Coefficient of contraction, discharge and velocity.
		4th day	Classifications of notches & weirs.
10	10th	1st day	Discharge over a rectangular notch or weir.
		2nd day	Discharge over a triangular notch or weir.
		3rd day	Difference between notch and weir.
		4th day	Simple problems on above.
11	11th	1st day	Definition of pipe and pipe flow.
		2nd day	Loss of energy in pipes.
		3rd day	Head loss due to friction.
		4th day	coefficient of fluctuation of speed.
12	12th	1st day	Darcy's formula for head loss.
		2nd day	Chezy's formula for head loss.
		3rd day	Solve Problems using Darcy's formula.

		4th day	Solve Problems using Chezy's formula.
13	13th	1st day	HGL and TEL.
		2nd day	Difference between HGL & TEL.
		3rd day	Concept of impact of jets.
		4th day	Impact of jet on fixed vertical flat plates.
14	14th	1st day	Impact of jet on moving vertical flat plates.
		2nd day	Derivation of work done on series of vanes.
		3rd day	condition for maximum efficiency.
		4th day	Solve simple numericals on above.
15	15th	1st day	Impact of jet on moving curved vanes.
		2nd day	Illustration using velocity triangles.
		3rd day	Derivation of work done, efficiency.
		4th day	Solve simple problems.