

Teaching Layout for Fluid Mechanics (4th Semester B. Tech in Civil Engineering)

Total No of Class Required =42

SL. No	Duration (No. of class)	Module	Topics Covered
1	1	I	Introduction
2	1	I	Physical properties of fluids; Density; specific weight; Specific volume; Specific gravity; Compressibility; Elasticity;
3	1	I	Surface tension; Capillarity; Vapour pressure; Viscosity; Ideal and real fluids; Concept of shear stress; Newtonian and non-Newtonian fluids.
4	1	I	Pressure-density-height relationship;
5	1	I	Manometers;
6	1	I	Pressure on plane
7	1	I	Solving Problem
8	1	I	Pressure on curved surface;
9	1	I	Centre of pressure; Buoyancy
10	1	I	Stability of immersed and floating bodies
11	1	I	Fluid masses subjected to uniform accelerations (Horizontal)
12	1	I	Fluid masses subjected to uniform accelerations (Vertical).
13	1	II	Steady and unsteady, uniform and non-uniform, laminar and turbulent flows and enclosed flows;
14	1	II	Definition of one-, two- and three-dimensional flows, Stream-lines, streak-lines, and path-lines; Stream-tubes;
15	1	II	Kinematics
16	1	II	Solving Problem on Kinematics
17	1	II	Velocity Potential
18	1	II	Stream Function
19	1	II	Flow net
20	1	III	Equation of continuity
21	1	III	One-dimensional Euler's equation of motion
22	1	III	Bernoulli's equation
23	1	III	Solving Problem using Bernoulli's equation
24	1	III	Momentum Equation
25	1	III	Solving problem using Momentum Equation
26	1	III	Laminar flow in pipes,
27	1	III	Turbulent flow in pipes; Hydraulic mean radius; Concept of losses; Darcy-Weisbach equation; Moody's (Stanton)

			diagram;
28	1	III	Flow in sudden expansion and contraction; Minor losses in fittings;
29	1	III	Branched pipes in parallel
30	1	III	Branched pipes in series
31	1	III	HGL and TEL for pipe system
32	1	IV	Open Channel flow, Chezy's, Kutter's and Manning's equations
33	1	IV	Channels of efficient cross Section.
34	1	IV	Specific energy, Critical flow, Discharge curve
35	1	IV	Application of specific energy, Specific force
36	1	IV	Flow transition in open channels
37	1	IV	Flow measurement in open channel
38	1	IV	Orifice meter
39	1	IV	Venturimeter
40	1	IV	Orifice
41	1	IV	Orifices and mouthpieces
42	1	IV	Point gauge; Pitot tube