

PCC- CVE202-T-INTRODUCTION TO FLUID MECHANICS

Name of the Faculty : Mr. Kamaldeep Singh
Discipline : B.Tech in Civil Engineering
Semester : IV (2nd Year)
Subject : Introduction to Fluid Mechanics
Lesson Plan Duration : 15 Weeks

Work Load (Lecture / Practical) per week (in hrs.) : Lectures – 03

Week	Theory	
	Lecture Day	Topic (Including assignment / Test)
1 st	1	Basic Concepts and Definitions – Distinction between a fluid and a solid
	2	Density, Specific weight, Specific gravity
	3	Kinematic and dynamic viscosity
2 nd	4	Variation of viscosity with temperature
	5	Newton law of viscosity
	6	Vapour pressure, boiling point
3 rd	7	Cavitations, surface tension, capillarity,
	8	Bulk modulus of elasticity, compressibility.
	9	Fluid Statics - Fluid Pressure
4 th	10	Pressure at a point
	11	Pascal's law
	12	Pressure variation with temperature
5 th	13	Pressure variation with temperature
	14	Density and altitude
	15	Piezometer, U-Tube Manometer, Single Column Manometer
6 th	16	U Tube Differential Manometer
	17	Micro manometers, pressure gauges
	18	Hydrostatic pressure and force: horizontal, vertical and inclined surfaces
7 th	1st Minor Test	
8 th	19	Hydrostatic pressure and force: horizontal, vertical and inclined surfaces
	20	Buoyancy and stability of floating bodies
	21	Fluid Kinematics -Classification of fluid flow
9 th	22	Steady and unsteady flow; uniform and non-uniform flow
	23	Laminar and turbulent flow; rotational and irrotational flow
	24	Compressible and incompressible flow
10 th	25	Ideal and real fluid flow
	26	One, two and three dimensional flows
	27	Stream line, path line, streak line and stream tube
11 th	28	Stream function, velocity potential function
	29	One, two and three dimensional continuity equations in Cartesian coordinates
	30	Fluid Dynamics - Surface and body forces
12 th	31	Equations of motion - Euler's equation
	32	Bernoulli's equation – derivation; Energy Principle
	33	Practical applications of Bernoulli's equation
13 th	34	Venturimeter, orifice meter and pitot tube; Momentum principle
	35	Forces exerted by fluid flow on pipe bend
	36	Vortex Flow – Free and Forced
14 th	2nd Minor test	
15 th	37	Dimensional Analysis and Dynamic Similitude
	38	Definitions of Reynolds Number, Froude Number, Mach Number
	39	Weber Number and Euler Number; Buckingham's π -Theorem.