Subject: PC/CE/2-T Fluid Mechanics-I Sem: 3rd

Week	Theory		Topic covered and Remarks		
	Lecture Day	Topic (Including assignment / Test)	Date	HOD	Director principal
1st	1	**Basic Concepts and Definitions** – Distinction between a fluid and a solid			
	2	Density, Specific weight, Specific gravity, specific volume			
	3	Kinematic and dynamic viscosity, Variation of viscosity with temperature			
2nd	4	Newtonian and Non-Newtonian fluids, real and ideal fluids, Newton law of viscosity			
	5	Cavitations, surface tension, capillarity,			
	6	Bulk modulus of elasticity, compressibility ,Vapour pressure, boiling point,			
3rd	7	**Fluid Statics** - Fluid Pressure, Pressure at a point			
	8	Pascal's law			
	9	Pressure variation with temperature, gauge and absolute pressure			
4th	10	Piezometer, U-Tube Manometer, Single Column Manometer			
	11	U Tube Differential Manometer			
	12	Micro manometers, pressure gauges			
5th	13	Hydrostatic pressure and force: horizontal, vertical and inclined surfaces			
	14	Hydrostatic pressure and force: horizontal, vertical and inclined surfaces			
	15	Buoyancy and stability of floating bodies			
6th	16	Determination of metacentric height, fluid masses subjected to uniform acceleration, free and forced vortex.			
	17	**Fluid Kinematics**-Classification of fluid flow			
	18	Steady and unsteady flow; uniform and non-uniform flow, Laminar and turbulent flow; rotational and irrotational flow			
7th	**1st Minor Test**				
8th	19	Compressible and incompressible flow, One, two and three dimensional flows			
	20	Stream line, path line, streak line and stream tube			
	21	Stream function, velocity potential function			
9th	22	One, two and three dimensional continuity equations in Cartesian coordinates			
	23	**Fluid Dynamics**- Surface and body forces			
	24	Equations of motion - Euler's equation			
10th	25	Bernoulli's equation – derivation; Energy Principle			
	26	Practical applications of Bernoulli's equation			
	27	Venturimeter, orifice meter and Pitot tube; Momentum principle			
11th	28	Sharp crested weirs and notches, aeration of Nappe.			
	29	Important dimensionless numbers and their significance			
	30	Buckingham's π-Theorem.			
12th	31	Geometric, kinematic and dynamic similarity, model studies, physical modeling, similar and distorted models.			
	32	**Laminar Flow:** Navier Stoke's equation			
	33	Laminar flow between parallel plates, Couette flow			
13th	34	Laminar flow between parallel			
	35	Plates laminar flow through pipes-Hagen Poiseuille law,.			
	36	laminar flow around a sphere-Stokes' Law			
14th	**2nd Minor Test**				
15th	37	Types of drag on a sphere, flat plate, cylinder and airfoil			
	38	Development of lift on immersed bodies like circular cylinder and airfoil.			
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