Semester 4th Subject: Fluid Mechanics-II (PC/CE/42-T)			
Week	**Lec. Day**	**Topics**	**Remarks**
1st	1	**Flow through pipes:** Types of flows-Reynold's experiment, shear stress on turbulent flow,	
	2	boundary layer in pipes-Establishment of flow,	
	3	velocity distribution for turbulent flow in smooth and rough pipes,	
	4	resistance to flow of fluid in smooth and rough pipes, Stanton and Moody's diagram	
2nd	5	Darcy's Weisbach equation,	
	6	other energy losses in pipes, loss due to sudden expansion,	
	7	hydraulic gradient and total energy lines,	
	8	pipes in series and in parallel	
3rd	9	equivalent pipe, branched pipe,	
	10	pipe networks, Hardy Cross method, water hammer.	
	11	**Boundary layer analysis:** Boundary layer thickness,	
	12	boundary layer over a flat plate	
4th	13	laminar boundary layer, turbulent boundary layer,	
	14	laminar sub-layer, smooth and rough boundaries,	
	15	Local and average friction coefficient,	
	16	separation and its control.	
5th	17	**Flow in Open Channels:** Difference between pipe flow and channel flow, Types of channels, Classification of flows,	
	18	Sub Critical and Supercritical Flows, Velocity distribution in channel.	
	19	Flow Measurement: Flow over notches and weirs,	
	20	Pitot tube floats and current meters for velocity measurement,	
6th	21	Flow over Spillways, Sluice gates, Free over fall flow.	
	22	**Unsteady flow and Hydraulic jump:** Froude number and types of hydraulic jump,	
	23	Applications Jumps in channels. Unsteady flow equation, ,	
	24	Pre jump and post jump depths	
7th	25	**MINOR TEST I**	
	26		
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8th	29	length of Hydraulic Jump and energy dissipation, Surges	
	30	**Concepts of Specific energy and specific Force:** Specific energy and specific curve,	
	31	**Concepts of Specific energy and specific Force:** Specific energy and specific curve,	
	32	Momentum Equation in open channels,	
9th	33	Specific force & specific force curve,	
	34	Critical depth and its computation.	
	35	**Gradually Varied Flow:** Channel transitions, non-uniform flow in open channels,	
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10th	37	Dynamic equation for GVF,	
	38	Water surface profiles in channels of different slopes GVF flow computations.	
	39	Design of Channels	
	40	most efficient channel sections	
11th	41	**Pumps and Turbines:** Reciprocating pumps, their types	
	42	work done by single and double acting pumps.	
	43	Centrifugal pumps, components and parts and working,	
	44	Centrifugal pumps, components and parts and working,	
12th	45	types, heads of a pump-statics and manometric heads.	
	46	Force executed by fluid jet on stationary and moving flat vanes,	
	47	Force executed by fluid jet on stationary and moving flat vanes,	
	48	Turbines-classifications of turbines based on head	
13th	49	Turbines-classifications of turbines based on specific speed,	
	50	component and working of Pelton wheel	
	51	component and working of Francis turbines	
	52	Numerical Problems	
14th	53	**MINOR TEST II**	
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15th	57	Efficiency and power	
	58	Cavitation and setting of turbines	
	59	Numerical Problems	
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