

Lesson Plan

Name of the Faculty:

Discipline: CIVIL ENGINEERING

Semester: 3rd SEM

Subject: FLUID MECHANICS

Work Load (Lecture/Practical) per week (in hours): Lectures- , Practicals-

Week	Theory		Practical	
	Lecture day	Topic (including assignment/test)	Practical day	Topic
1 st	1 st	Introduction about subject	1 st	Introduction to lab, equipment etc.
	2 nd	Real and ideal fluids		
	3 rd	Fluid Mechanics, Hydrostatics,		
	4 th	Hydrodynamics, Hydraulics		
2 nd	5 th	Properties of Fluids	2 nd	List of practicals
	6 th	Mass density, specific weight, specific gravity		
	7 th	viscosity, surface tension - cohesion		
	8 th	adhesion and, capillarity, vapour pressure and compressibility		
3 rd	9 th	Units of measurement and their conversion	3 rd	To find out venturimeter coefficient
	10 th	Hydrostatic Pressure		
	11 th	Pressure, intensity of pressure, pressure head,		
	12 th	Pascal's law and its applications.		
4 th	13 th	Total pressure, resultant pressure, and centre of pressure	4 th	To find out venturimeter coefficient
	14 th	Total pressure and centre of pressure on horizontal		
	15 th	vertical and inclined plane surfaces of rectangular		
	16 th	triangular, trapezoidal shapes and circular		
5 th	17 th	CH. 1,2,3 TEST	5 th	To determine coefficient of velocity (Cv), Coefficient of discharge (Cd) Coefficient of contraction (Cc) of an orifice and verify the relation between them
	18 th	Measurement of Pressure:		
	19 th	Atmospheric pressure, gauge pressure, vacuum pressure and absolute pressure.		
	20 th	Piezometer, simple manometer and differential manometer		
6 th	21 st	Bourden gauge and dead weight pressure gauge	6 th	To perform Reynold's experiment
	22 nd	Types of Flow: Steady and unsteady flow, laminar and		

		turbulent flow, uniform and non-uniform flow		
	23 rd	Discharge and continuity equation (flow equation)		
	24 th	Types of hydraulic energy: Potential energy, kinetic energy, pressure energy		
7 th	25 th	Bernoulli's theorem; statement and description	7 th	To verify loss of head in pipe flow due to a) Sudden enlargement b) Sudden contraction c) Sudden bend
	26 th	Flow Measurements		
	27 th	Venturimeter and mouthpiece		
	28 th	Pitot tube , Orifice and Orificemeter ,Current meters		
8 th	29 th	Notches and weirs	8 th	To verify loss of head in pipe flow due to a) Sudden enlargement b) Sudden contraction c) Sudden bend
	30 th	CH.3,4,5 TEST		
	31 st	Flow through Pipes:		
	32 nd	Definition of pipe flow; Reynolds number, laminar and turbulent flow - explained through Reynold's experimen		
9 th	33 rd	Critical velocity and velocity distributions in a pipe for laminar flow	9 th	Demonstration of use of current meter and pitot tube
	34 th	Head loss in pipe lines due to friction, sudden expansion and sudden contraction		
	35 th	entrance, exit, obstruction and change of direction		
	36 th	Hydraulic gradient line and total energy line		
10 th	37 th	CH. 4,5,6 TEST	10 th	To determine coefficient of discharge of a rectangular notch.
	38 th	Flow from one reservoir to another through a long pipe of uniform cross section (simple problems)		
	39 th	Numerical Problems		
	40 th	Pipes in series and parallel		
11 th	41 st	Numerical Problems	11 th	To determine coefficient of discharge of a triangular notch.
	42 nd	Water hammer phenomenon and its effects		
	43 rd	Flow through open channels		
	44 th	Definition of an open channel, uniform flow and non-uniform flow		
12 th	45 th	Discharge through channels using i) Chezy's formula	12 th	To determine coefficient of discharge of a triangular notch.
	46 th	Manning's formula (no derivation)		
	47 th	Numerical Problems		
	48 th	Most economical channel sections		
13 th	49 th	Rectangular,Trapezoida	13 th	To determine coefficient of discharge of a rectangular notch.
	50 th	Numerical Problems		

	51 st	Head loss in open channel due to friction		
	52 nd	Numerical Problems		
14 th	53 rd	Hydraulic Pumps,Hydraulic pump,	14 th	To verify Bernoullis Theorem
	54 th	reciprocating pump,		
	55 th	Numerical Problems		
	56 th	CH. 7,8,9 TEST		
15 th	57 th	reciprocating pump,	15 th	To verify Bernoullis Theorem
	58 th	1 ST SESIONAL REVISION		
	59 th	2 ND SESIONAL REVISION		
	60 th	3 RD SESIONAL REVISION		