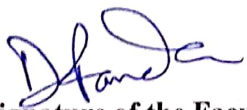


# LESSON PLAN

Name of the Institute :		C.V. Raman Polytechnic, BHUBANESWAR
Department :		CIVIL ENGINEERING
Semester/Division/Branch :		4th SEM/CIVIL
Subject Name with code :		Hydraulics & Irrigation Engg.(TH-2 )
Total No. of Class (Required) :		75
Faculty Name :		DEBI PRASAD PANDA
Class No.	Brief Description of the Topic/Chapter to be taught	Remarks
1	<b>Part -A(Hydraulics) Hydaostatics of fluid-</b> Density, specific gravity	
2	Surface tension, capillarity, Viscosity and their uses	
3	.....Do.....	
4	Pressure and its measurements : Intensity of pressures, atmospheric pressure	
5	Gauge pressure, Absolute pressure and vacuum pressure	
6	Relationship between atmospheric pressure , Gauge pressure & Absolute pressure	
7	Pressure head, pressure gauges	
8	.....Do.....	
9	Pressure exerted on an immersed surface, Total pressure, resultant pressure	
10	.....Do.....	
11	Total pressure exerted on horizontal surface	
12	Total pressure exerted on vertical surface	
13	<b>Kinematics of fluid flow:</b> The basic equation of fluid flow and their application : rate of discharge, equation of continuity of liquid flow	
14	Total energy of a liquid in motion- potential, kinetic and pressure	
15	Bernouli's Theorem and its limitation- Pratical applications	
16	.....Do.....	
17	.....Do.....	
18	<b>Flow over notches &amp; weirs:</b> Notches, weirs and their types. Discharges through different types of notches &weirs-their applications	
19	.....Do.....	
20	.....Do.....	
21	.....Do.....	
22	<b>Types of flow through pipe-</b> Uniform and non-uniform, laminar and turbulent	
23	Steady and unsteady ,reynolds number and its application	
24	.....Do.....	
25	<b>Loss of head of a liquid flowing through pipes</b> Types of major and minor losses	
26	Numerical problem on losses due to friction - Darcy's Equation	
27	.....Do.....	
28	.....Do.....	

29	Total Energy lines and hydraulic gradient	
30	.....Do.....	
31	<b>Part B (Irrigation Engg.)</b> Hydrology cycle	
32	Rainfall types, Intensity, hyetograph	
33	Estimation of rainfall, raingauges and its type	
34	Concept of catchment area, types runoff, estimation of flood discharge by Dicken's and ryves formula	
35	Defination of irrigation, Necessity, Benefits and types of irrigation, crop season	
36	Duty, Delta and base period and their relationship. Overlap allowance ,Khariff and rabi crop	
37	Gross command area, culturable command area intensity of irragation, irrigable area , time factor, crop ratio :	
38	.....Do.....	
39	<b>Flow Irrigation :</b> Canal irrigation , Types of canal, loss of water in canal	
40	.....Do.....	
41	Perennial irrigation. Component of irrigation canals and their functions	
42	.....Do.....	
43	Sketches of different canal cross sections	
44	Classification of canals as per their alignment	
45	various types of canal lining- Advantages and dis advantages	
46	<b>Water logging and drainage</b> - Causes and effects , detection, preventions and remedies	
47	.....Do.....	
48	<b>Diversion Headworks and regulatory structure</b> Necessaty and objectives of diversion head works, weirs and barages	
49	.....Do.....	
50	General layout, functions of different part odbarages	
51	.....Do.....	
52	Sliting and Scouring	
53	.....Do.....	
54	Functions of regulatory structure	
55	.....Do.....	
56	<b>Cross Drainage work :</b> Functjions and necessity of cross drainage work	
57	Aqueduct	
58	.....Do.....	
59	siphon	
60	.....Do.....	
61	Super pasage	
62	.....Do.....	
63	Level Crossing	
64	<b>Dams :</b> Necessity of storage resorvoirs, Types of dam	
65	<b>Earthen dams-</b> Types , Description , causes of failure and protection measures	
66	.....Do.....	
67	<b>Gravity dam :</b> Types and description , causes of failure and protection measures	
68	.....Do.....	
69	<b>Spill ways:</b> Types , sketches and necessity	
70	.....Do.....	

71	<b>Hydraulic Machines ( Pumps ) : Types of pump</b>	
72	<b>Centrifugal Pumps : Principles , Operations , Discharge, HP and efficiency</b>	
73	.....Do.....	
74	<b>Reciprocating pumps : Types , Operation , discharge , HP and efficiency</b>	
75	.....Do.....	

  
Signature of the Faculty

  
Signature of the H.O.D