TH2 HYDRAULICS & IRRIGATION ENGINEERING 4TH SEMESTER LESSON PLAN

SL.NO.	UNIT	TOPIC	PERIOD	TOTAL
1	HYDROSTATICS	Properties of fluid: density, specific gravity, surface tension, capillarity, viscosity & their uses	2	10
		Pressure and its measurements: intensity of pressure, gauge pressure, atmospheric pressure, absolute pressure & vacuum pressure, relationship between them, pressure head, pressure gauges.	4	
		Pressure exerted on an immersed surface: total pressure, resultant pressure exerted on horizontal & vertical surface.	3	
		Numerical problems	1	
2	KINEMATICS OF FLUID FLOW	Basic eq. of fluid flow & their app.: Q, eq. of continuity of liquid flow, total energy of a liquid in motion- potential, kinetic & pressure, Bernoulli's theorem & its limitations, Practical app. of Bernoulli's eq.	4	14
		Flow over Notches & Weirs: Definition, types, discharge, app.	2	
		Numerical problems	1	
		Types of flow through the pipes: uniform & non-uniform, laminar and turbulent, steady and unsteady, Reynold's number & its app.	2	
		Losses of head of liquid flowing through pipes: Diff. types of major & minor losses. Numerical problems using Darcy's eq. Concepts of TEL & HGL	2	
		Flow through the Open Channels: Types of channel sections- rect., trap., circ.. Discharge formulae using Chezy's & Manning's eq, Best economical section.	2	
		Numerical problems	1	
3	PUMPS	Types, basic principles, operation, discharge, HP & efficiency of Centrifugal & Reciprocating pumps.	2	2

4	HYDROLOGY	Hydrology cycle, rainfall-types, intensity, hyetograph, estimation, rain gauges and its types.	2	4
		Catchment area, types, run-off, estimation of flood discharge by Dicken's & Ryve's formulae.	2	
5	WATER REQUIREMENT OF CROPS	Definition of irrigation, necessity, benefits & types	1	3
		Crop season, Duty, Delta, base period, overlap allowance, kharif & rabi crops	1	
		GCA, CCA, Int. of irr., irrigable area, time factor, crop ratio.	1	
6	FLOW IRRIGATION	Canal irrigation, types of canals, loss of water, Perennial irrigation	2	6
		Different components of irrigation canals & their functions.	1	
		Sketches of different canal c/s	1	
		Classification of canals according to their alignment, Various types of canal lining, their advantages & disadvantages.	2	
7	WATER LOGGING & DRAINAGE	Causes & effects, detection, prevention & remedies.	1	1
8	DIVERSION HEADWORKS & REGULATORY STRUCTURES	Necessity & objectives, general layout, functions of different parts.	3	7
		Silting & scouring, functions of regulatory structures	2	
9	CROSS DRAINAGE WORKS	Functions & necessity of aqueduct, siphon, super passage, level crossing.	3	5
		Concept with neat sketches	2	
10	DAMS	Necessity & types.	1	1
		Earthen dams- types, description, causes of failure & protective measures.	1	3
		Gravity dams – types, description, causes of failure & protective measures.	1	
		Spillways- Types, sketches, necessity	1	
Revision classes			4	4

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