LESSON PLAN FOR SUMMER 2022

DISCIPLINE:- CIVIL ENGG.	DATE	SEMESTER:-4TH SEM SEC A	NAME OF THE TEACHING FACULTY:- JASODHARA SAHOO (PTGF)
SUBJECT:- HYDRAULICS & IRRIGATION ENGG. (TH-2)		NO. OF DAYS/PER WEEK CLASS ALLOTED:- 5T	SEMESTER - 4TH Sem SEC A FROM DATE-10/03/2022 TO DATE- 10/06/2022 NO. OF WEEKS-14WEEKS
WEEK		CLASS DAY	THEORY TOPICS
			1.0 HYDROSTATICS:(12P)
1ST WEEK	3/10/2022	3rd	1.1 Properties of fluid: density, specific gravity, surface tension
	3/11/2022	4th	1.1 Capillarity, viscosity and their uses.
	3/12/2022	5th	1.2 Pressure and its measurement:intensity of pressure ,atmospheric pressure
2nd WEEK	3/14/2022	1st	gauge pressure ,absolute pressure and vacuum pressure
	3/16/2022	2nd	Relationship between atmospheric pressure, absolute pressure and gauge pressure,pressure head;pressure gauges
	3/17/2022	3rd	Relationship between atmospheric pressure, absolute pressure and gauge pressure,pressure head;pressure gauges
3rd WEEK	3/21/2022	1st	Numerical Problems
	3/23/2022	2nd	Numerical Problems
	3/24/2022	3rd	1.3 Pressure exerted on an immersed surface: Total pressure, resultant pressure
	3/25/2022	4th	Expression for total pressure exerted on horizontal & vertical surface.
	3/26/2022	5th	Numerical Problems
4th WEEK	3/28/2022	1st	Numerical Problems
			2.0 KINEMATICS OF FLUID FLOW:(18P)
	3/30/2022	2nd	2.1 Basic equation of fluid flow and their application: Rate of discharge, equation of continuity of liquid flow
	3/31/2022	3rd	total energy of a liquid in motion- potential, kinetic & pressure
	4/2/2022	5th	Bernoulli's theorem and its limitations.
5th WEEK	4/4/2022	1st	Practical applications of Bernoulli's equation
	4/6/2022	2nd	Numerical Problems
	4/7/2022	3rd	2.2 Flow over Notches and Weirs: Notches, Weirs, types of notches and weirs,
	4/8/2022	4th	Discharge through different types of notches and weirs-their application (No Derivation)
	4/9/2022	5th	Numerical Problems
6th WEEK	4/11/2022	1st	2.3 Types of flow through the pipes: uniform and non uniform; laminar and turbulent; steady and unsteady
	4/13/2022	2nd	Reynold's number and its application
	4/16/2022	5th	2.4 Losses of head of a liquid flowing through pipes: Different types of major and minor losses

7th WEEK	**4/18/2022**	**1st**	Simple numerical problems on losses due to friction using Darcy's equation,
7th WEEK	**4/20/2022**	**2nd**	Total energy lines & hydraulic gradient lines (Concept Only).
	4/21/2022	**3rd**	2.5 Flow through the Open Channels: Types of channel sections- rectangular, trapezoidal and circular
	4/22/2022	**4th**	Discharge formulae- Chezy's and Manning's equation,
	4/23/2022	**5th**	Best economical section,
8th WEEK	**4/25/2022**	**1st**	Numerical Problems
	4/27/2022	**2nd**	Numerical Problems
			3-PUMPS: (5P)
	4/28/2022	**3rd**	3.1 Type of pumps
	4/29/2022	**4th**	3.2 Centrifugal pump: basic principles,
	4/30/2022	**5th**	3.2 operation, discharge, horse power & efficiency.
9th WEEK	**5/2/2022**	**1st**	3.3 Reciprocating pumps: types,operation, discharge, horse power & efficiency
	5/4/2022	**2nd**	3.3 Reciprocating pumps: types,operation, discharge, horse power & efficiency
			PART-B IRRIGATION ENGG.
			1. HYDROLOGY (4P)
	5/5/2022	**3rd**	1.1 Hydrology Cycle
	5/6/2022	**4th**	1.2 Rainfall: types, intensity, hyetograph
	5/7/2022	**5th**	1.3 Estimation of rain fall,raingauges,its types (concept only)
10th WEEK	**5/9/2022**	**1st**	1.4 Concept of catchment area,types,runoff,estimation of flood or discharge by dicken's and ryve's formulae
			2. WATER REQUIREMENT OF CROPS (4P)
	5/11/2022	**2nd**	2.1 Defination of irrigation,necessity,benefits of irrigation,types of irrigation
	5/12/2022	**3rd**	2.2 Crop season
	5/13/2022	**4th**	2.3 Duty,delta and base period their relationship,overlap allowance, kharif and rabi crops
	5/14/2022	**5th**	2.4 Gross command area, cullturable command area, intensity of irrigation,irrigable area,time factor, crop ratio
			3. FLOW IRRIGATION(7P)
11th WEEK	**5/18/2022**	**2nd**	3.1 Canal irrigation, types of canals, loss of water in canals
	5/19/2022	**3rd**	3.2 Perennial irrigation
	5/20/2022	**4th**	3.3 Different components of irrigation canals and their functions
	5/21/2022	**5th**	3.3 Different components of irrigation canals and their functions
12th WEEK	**5/23/2022**	**1st**	3.4 Sketches of different canal cross-sections
	5/25/2022	**2nd**	3.5 Classification of canals according to their alignment, Various types of canal lining – Advantages and disadvantages
	5/26/2022	**3rd**	3.5 Classification of canals according to their alignment, Various types of canal lining – Advantages and disadvantages
			4.WATER LOGGING & DRAINAGE(2P)

	5/27/2022	4th	4.1 Causes and effects of water logging, detection, prevention and remedies
	5/28/2022	5th	4.1 Causes and effects of water logging, detection, prevention and remedies
			5.DIVERSION HEAD WORKS AND REGULATORY STRUCTURES(8P)
13th WEEK	6/1/2022	2nd	5.1 Necessity and objectives of diversion head works, weirs and barrages
	6/2/2022	3rd	5.1 Necessity and objectives of diversion head works, weirs and barrages
	6/3/2022	4th	5.2 General layout, functions of different parts of barrage
	6/4/2022	5th	5.2 General layout, functions of different parts of barrage
14th WEEK	6/6/2022	1st	5.3 Silting and scouring
	6/8/2022	2nd	5.3 Silting and scouring
	6/9/2022	3rd	5.4 Functions of regulatory structures
	6/10/2022	4th	5.4 Functions of regulatory structures
			6.CROSS DRAINAGE WORKS (7P)
			6.1 Functions and necessity of cross drainage works
EXTRA CLASSES REQUIRED			6.1 Aqueduct, syphon
			6.1 Super passasge, level crossing ,
			6.2 Concept of each with help of neat sketch
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			7. DAMS (8P)
			7.1 Necessity of storage reservoirs
			7.1 Types of dams
			7.2 Earthen dams: types, description
			7.2 Causes of failure and protection measures
			7.3 Gravity dam - types, description
			7.3 Causes of failure and protection measures
			7.4 Spillway types
			7.4 Spillways necessity