BALASORE SCHOOL OF ENGINEERING, BALASORE

LESSON PLAN/SEMESTER:-4th(CIVIL)

TH-02

SUBJECT:- **HYDRAULICS AND IRRIGATION ENGG.** NAME OF THE FACULTY :- **S.S ROUT**

SL. No.	Month /No .of academic days available for the subject	DATE	TOPICS TO BE COVERED
	FEB(5)	23/02/2023	CH-1 (HYDRAULICS)Properties offluids, density, sp. Gravity, surface tension, capillarity, viscosity& their uses
		24/02/2023	**Pressure& its measurement**:-definition, intensity of pressure, atm. Pressure, gauge pressure, absolute pressure, vacuum pressure
		25/02/2023	relation between atm. Pressure, gauge pressure, absolute pressure,
		27/02/2023	pressure head, pressure gauges
		28/02/2023	CH-1 (IRRIGATION):Hydrology 1.1 Hydrology Cycle 1.2 Rainfall: types
	MARCH(23)	1/03/2023	intensity, hyetograph 1.3 Estimation of rainfall,
		2/03/2023	rain gauges, Its types(concept only),
		3/03/2023	1.4 Concept of catchment area, types, run-off
		4/3/2023. .	estimation of flood discharge by Dicken's and Ryve's formulae

SL. No.	Month /No .of academic days available for the subject	DATE	TOPICS TO BE COVERED
		06/03/2023	CH:2 ,Water Requirement of Crops 2.1 Definition of irrigation, necessity, benefits of irrigation
		09/03/2023	Types of irrigation 2.2 Crop season
		10/03/2023	2.3 Duty, Delta and base period their relationship overlap allowance, kharif and rabi crops
		11/03/2023	2.4 Gross command area, culturable command area
		13/03/2023	Intensity of Irrigation, irrigable area, time factor, crop ratio
		14/03/2023	CH-2 (HYDRAULICS)Pressure exerted on an immersed surface; definition, total pressure, resultant pressure
		15/03/2023	expression of equation for total pressure exerted on horizontal& vertical surface
		16/03/2023	**Basic equation of fluid flow & their application**: rate of discharge, equation of continuity of liquid flow, total energy of a liquid in motion
		17/03/2023	potential, kinetic & pressure, Bernoulli's theorem and its limitations. Practical applications of Bernoulli's equation.
		18/03/2023	**Types of flow through the pipes**: Uniform and non-uniform; lamer and turbulent,
		20/03/2023	. steady and unsteady: Reynolds's number and its application.
		21/03/2023	. **Flow over notche** : notch, types of notches
		22/03/2023	, discharge through different types of notches
		,23/3/2023	and their application

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		24/03/2023	**Flow over weir:** weir and difference with notches, types of weirs, discharge formula for different types of weirs
		25/03/2023	and their application.
		27/03/2023	Losses of head of a liquid flowing through pipes due to friction ,.
		28/03/2023	sudden enlargement, sudden contraction, change of direction of flow, loss in inlet & exit,
		29/03/2023	total energy lines & hydraulic gradient lines
	APRIL(13)	03/04/2023	**Flow through the open channels:** types of channel section
		4/04/2023	rectangular, trapezoidal and circular,
		5/04/2023	discharge formula- Chezy's and Manning's equation, best economical section
		6/04/2023	CH-3: FLOW IRRIGATION 3.1 Canal irrigation,
		10/04/2023	types of canals, loss of water in canals 3.2 Perennial irrigation
		11/04/2023	3.3 Different components of irrigation canals and their functions
		12/04/2023	3.4 Sketches of different canal cross-sections

SL. No.	Month /No .of academic days available for the subject	DATE	TOPICS TO BE COVERED
		13/04/2023	CONTINUE..
		24/04/2023	3.5 Classification of canals according to their alignment,
		25/04/2023	Various types of canal lining – Advantages and disadvantages
		26/04/2023	CH=4: WATER LOGGING AND DRAINAGE : 4.1 Causes and effects of water logging,
		27/04/2023	detection, prevention and remedies
		28/04/2023	CH-5 :DIVERSION HEAD WORKS AND REGULATORY STRUCTURES
	MAY(12)	1/05/2023	5.1 Necessity and objectives of diversion head works, weirs and barrages
		2/05/2023	5.2 General layout, functions of different parts of barrage 5.3 Silting and scouring5.4 Functions of regulatory structures
		3/05/2023	CH-6 :CROSS DRAINAGE WORKS : 6.1 Functions and necessity of Cross drainage works -
		4/05/2023	aqueduct, siphon, superpassage, level crossing 6.2 Concept of each with help of neat sketch
		5/05/2023	CH-7:DAMS 7.1 Necessity of storage reservoirs, types of dams
		6/05/2023	. 7.2 Earthen dams
		8/05/2023	types, description, causes of failure and protection measures
		9/05/2023	7.3 Gravity dam- types, description, Causes of failure and protection measures.
		10/05/2023	7.4 Spillways- Types (With Sketch) and necessity.
		11/05/2023	**CH-3** **Type of pumps** **Centrifugal pumps:** basic principles, discharge
		12/05/2023	, horse power of Pump
		13/05/2023	efficiency of centrifugal pump, simple numerical problems
		15/05/2023	efficiency of centrifugal pump, simple numerical problems

		16/05/2023	**Reciprocating pumps:**, simple numerical problems types, operation, discharge,
		17/05/2023	calculation of horse power, efficiency

Brief Summary of the Plan

Slno	Month	Units/Chapter To be Covered	Percentage of Coverage
1	FEB	CH-1 (HYDR),CH-1(IRI)CONT..	15
2	MARCH	CH-1,CH-2(IRI),CH-2(CON..)HYD	35
3	APRIL	CH-2(HYD),CH-3,CH-4,CH-5(CON)(IRI)	35
4	MAY	CH-5,CH-6,CH-7(IRI),CH-3(HYD)	15

Signature of the Faculty

Date

Signature of the Principal

Date 22/2/23