

LESSON PLAN OF 4TH SEMESTER CIVIL ENGINEERING(2023-24)

Discipline: CE	Semester:-4 TH	Name of the Teaching Faculty:- BAISALI SAMANTRAI
Subject:- Hydraulic and Irrigation Engineering	No of Days/per Week Class Allotted :-05	No. of Weeks : 20
Week	Class Day	Theory/ Practical Topics
1 st	1 st	HYDROSTATICS: Properties of fluid:density, specific gravity, surface tension,
	2 nd	NUMERICAL PROBLEMS SOLVING
	3 rd	capillarity, viscosity and their uses
	4 th	NUMERICAL PROBLEMS SOLVING
	5 th	Pressure and its measurements:intensity of pressure, atmospheric pressure, gauge pressure, absolute pressure and vacuum pressure;
2 nd	1 st	Relationship between atmospheric pressure, absolute pressure and gauge pressure; pressure head; pressure gauges.
	2 nd	NUMERICAL PROBLEMS SOLVING
	3 rd	NUMERICAL PROBLEMS SOLVING
	4 th	Pressure exerted on an immersed surface:Total pressure, resultant pressure,
	5 th	NUMERICAL PROBLEMS SOLVING
3 rd	1 st	Expression for total pressure exerted on horizontal & vertical surface.
	2 nd	NUMERICAL PROBLEMS SOLVING
	3 rd	Kinematics of fluid flow: Basic equation of fluid flow and their application:Rate of discharge, equation of continuity of liquid flow.
	4 th	NUMERICAL PROBLEMS SOLVING
	5 th	total energy of a liquid in motion- potential, kinetic & pressure
4 th	1 st	NUMERICAL PROBLEMS SOLVING
	2 nd	Bernoulli's theorem and its limitations. Practical applications of Bernoulli's equation.
	3 rd	NUMERICAL PROBLEMS SOLVING
	4 th	Flow over Notches and Weirs: Notches, Weirs, types of notches and weirs,
	5 th	Discharge through different types of notches and weirs-their application (No Derivation)
5 th	1 st	NUMERICAL PROBLEMS SOLVING
	2 nd	Types of flow through the pipes:uniform and non uniform; laminar and turbulent; steady and unsteady

	3 rd	Reynold's number and its application
	4 th	Losses of head of a liquid flowing through pipes:Different types of major and minor losses.
	5 th	Simple numerical problems on losses due to friction using Darcy's equation
	6 th	1 st Total energy lines & hydraulic gradient lines (Concept Only).
	2 nd	Flow through the Open Channels:Types of channel sections-rectangular, trapezoidal and circular
	3 rd	Chezy's and Manning's equation.
	4 th	NUMERICAL PROBLEMS SOLVING
	7 th	1 st Name of the Teaching Faculty
	2 nd	No. of Weeks : 20
	3 rd	Discharge, horse power & efficiency.
	4 th	Reciprocating pumps:types, operation
	5 th	horse power & efficiency
	8 th	1 st Hydrology Hydrology Cycle Rainfall: types, intensity, hyetograph Estimation of rainfall, rain gauges, Its types(concept only), Concept of catchment area, types, run-off, estimation of flood discharge by Dicken's and Ryve's formulae
	2 nd	Rainfall: types, intensity, hyetograph
	3 rd	Estimation of rainfall, rain gauges, Its types(concept only)
	4 th	Concept of catchment area, types, run-off, estimation of flood discharge by Dicken's and Ryve's formulae
	5 th	Water Requirement of Crops Definition of irrigation, necessity, benefits of irrigation, types of irrigation
	9 th	1 st Crop season
	2 nd	Duty, Delta and base period their relationship, overlap allowance, kharif and rabi crops
	3 rd	Gross command area, culturable command area, Intensity of Irrigation, irrigable area, time factor, crop ratio
	4 th	Flow irrigation Canal irrigation, types of canals, loss of water in canals
	5 th	Perennial irrigation
	10 th	1 st Different components of irrigation canals
	2 nd	and their functions
	3 rd	Sketches of different canal cross-sections
	4 th	classification of canals according to their alignment
	5 th	Various types of canal lining – Advantages and disadvantages

11 th	1 st	WATER LOGGING AND DRAINAGE : Causes and effects of water logging detection, prevention and remedies
	2 nd	
	3 rd	DIVERSION HEAD WORKS AND REGULATORY STRUCTURES Necessity and objectives of diversion head works
	4 th	weirs and barrages
	5 th	General layout of barrage
12 th	1 st	functions of different parts of barrage
	2 nd	Silting and scouring
	3 rd	Functions of regulatory structures
	4 th	CROSS DRAINAGE WORKS : Functions of Cross drainage works aqueduct
	5 th	necessity of Cross drainage works
13 th	1 st	aqueduct concept with help of neat sketch
	2 nd	Siphon concept with help of neat sketch
	3 rd	concept with help of neat sketch
	4 th	DAMS Necessity of storage reservoirs
	5 th	types of dams
14 th	1 st	Earthen dams: types, description
	2 nd	causes of failure and protection measures.
	3 rd	Gravity dam- types, description
	4 th	Causes of failure and protection measures.
	5 th	Spillways- Types (With Sketch)
15 th	1 st	Necessity of spillway
	2 nd	PREVIOUS YEAR QUESTIONS PRACTICE
	3 rd	PREVIOUS YEAR QUESTIONS PRACTICE
	4 th	PREVIOUS YEAR QUESTIONS PRACTICE
	5 th	DOUBT CLEARING CLASS
16 th	1 st	Necessity of spillway
	2 nd	PREVIOUS YEAR QUESTIONS PRACTICE
	3 rd	PREVIOUS YEAR QUESTIONS PRACTICE
	4 th	PREVIOUS YEAR QUESTIONS PRACTICE
	5 th	DOUBT CLEARING CLASS
17 th	1 st	Necessity of spillway
	2 nd	PREVIOUS YEAR QUESTIONS PRACTICE
	3 rd	PREVIOUS YEAR QUESTIONS PRACTICE
	4 th	PREVIOUS YEAR QUESTIONS PRACTICE

18 th	5 th	DOUBT CLEARING CLASS
	1 st	Necessity of spillway
	2 nd	PREVIOUS YEAR QUESTIONS PRACTICE
	3 rd	PREVIOUS YEAR QUESTIONS PRACTICE
	4 th	PREVIOUS YEAR QUESTIONS PRACTICE
19 th	5 th	DOUBT CLEARING CLASS
	1 st	Necessity of spillway
	2 nd	PREVIOUS YEAR QUESTIONS PRACTICE
	3 rd	PREVIOUS YEAR QUESTIONS PRACTICE
	4 th	PREVIOUS YEAR QUESTIONS PRACTICE
20 th	5 th	DOUBT CLEARING CLASS
	1 st	Necessity of spillway
	2 nd	PREVIOUS YEAR QUESTIONS PRACTICE
	3 rd	PREVIOUS YEAR QUESTIONS PRACTICE
	4 th	PREVIOUS YEAR QUESTIONS PRACTICE
	5 th	DOUBT CLEARING CLASS

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