UTKAL INSTITUTE OF NGINEERING & TECHNOLOGY

DISCIPLINE: CIVIL	SEMESTER: 4TH Sem	NAME OF THE TEACHING FACULTY: Er.Rehebari Tarannum	
SUBJECT: HYDRAULICS & IRRIGATION ENGINEERING	No of Days/Per week class allotted: **5** Class P/W**(75)**	Semester From Date:16/01/2024 To Date:24/04/2024 No. Of Weeks: **15**	

WEEK	CLASS DAY	THEORY TOPICS	REMARKS	
1st	1st	HYDROSTATICS: Properties of fluid	Date	Dean/Principal
	2nd	Density, specific gravity		
	3rd	surface tension		
	4th	capillarity, viscosity and their uses		
	5th	Pressure and its measurements		
2nd	1st	Intensity of pressure, atmospheric pressure,		
	2nd	gauge pressure, absolute pressure and vacuum pressure		
	3rd	Relationship between atmospheric pressure, absolute pressure and gauge pressure; pressure head; pressure gauges		
	4th	Pressure exerted on an immersed surface		
	1st	Total pressure, resultant pressure,		

3rd	2nd	Expression for total pressure exerted on horizontal & vertical surface.		
	3rd	Relationship between atmospheric pressure, absolute pressure and gauge pressure; pressure head; pressure gauges.		
	4th	Basic equation of fluid flow and their application		
	5th	equation of continuity of liquid flow		
4th	1st	Total energy of a liquid in motion- potential		
	2nd	Kinetic & pressure, Bernoulli's theorem and its limitations		
	3rd	Practical applications of Bernoulli's equation		
	4th	Flow over Notches and Weirs		
	5th	Notches, Weirs, types of notches and weirs		
5th	1st	different types of notches and weirs-their application (No		
	2nd	Types of flow through the pipes		
	3rd	Laminar and turbulent;		
	4th	Steady and unsteady; Reynold's number		
	5th	Reynold's number and its application		
	1st	Losses of head of a liquid flowing through pipes:		
	2nd	Different types of major and minor losses		

6th	3rd	Simple numerical problems on losses due to friction using Darcy's equation		
	4th	Total energy lines & hydraulic gradient lines (Concept Only).		
	5th	Flow through the Open Channels: Types of channel sections- rectangular,		
7th	1st	discharge formulae- Chezy's and Manning's equation, Best economical section.		
	2nd	PUMPS: Type of pumps		
	3rd	Centrifugal pump		
	4th	Basic principles, operation		
	5th	Discharge, horse power & efficiency.		
8th	1st	Reciprocating pumps: types, operation, discharge, horse power & efficiency		
	2nd	**PART: B (Irrigation Engineering)** Hydrology, Hydrology Cycle		
	3rd	Hydrology 1.1 Hydrology Cycle		
	4th	Estimation of rainfall, rain gauges, Its types(concept only)		
	5th	Concept of catchment area, types, run-off, estimation of flood discharge by Dicken's and Ryve's formula.		

9th	1st	Definition of irrigation, necessity, benefits of irrigation, types of irrigation		
10th	1st	Crop season		
	2nd	Duty, Delta and base period their relationship, overlap allowance, kharif and rabi crops		
	3rd	Gross command area, culturable command area, Intensity of Irrigation, irrigable area, time factor, crop ratio		
	4th	FLOW IRRIGATION ,Canal irrigation		
	5th	Types of canals, loss of water in canals		
11th	1st	Perennial irrigation		
	2nd	Different components of irrigation canals and their functions		
	3rd	Sketches of different canal cross-sections		
	4th	Classification of canals according to their alignment		
	5th	Various types of canal lining – Advantages and disadvantages		
	1st	Various types of canal lining – Advantages and disadvantages Detection, prevention and remedies		
	2nd	DIVERSION HEAD WORKS AND REGULATORY STRUCTURES		

12th	3rd	WORKS AND REGULATORY STRUCTURES :Necessity and objectives of		
		Necessity and objectives of weirs and barrages		
	4th	General layout, functions of different parts of barrage		
	5th	General layout, functions of different parts of		
13th	1st	Silting and scouring		
	2nd	Functions of regulatory structures		
	3rd	Functions of regulatory structures		
	4th	ASSIGNMENT		
	5th	CROSS DRAINAGE WORKS : Functions and necessity of Cross		
14th	1st	Functions and necessity of Cross drainage works - aqueduct,		
	2nd	Functions and necessity of Cross drainage works -		
	3rd	Functions and necessity of Cross drainage works - superpassage		
	4th	Functions and necessity of Cross drainage works- level crossing		
	5th	Concept of each with help of neat sketch		
15th	1st	Concept of each with help of neat sketch		
	2nd	DAMS :Necessity of storage reservoirs		
	3rd	Types of dams		
	4th	Earthen dams: types, description		

	5th	Causes of failure and protection measures		
	1st	Gravity dam- types, description,		
	2nd	Causes of failure and protection measures.		
	3rd	Spillways- Types (With Sketch) and necessity.		
	4th	Spillways- Types (With Sketch) and necessity.		
	5th	DOUBT CLASS		

HOD **DEAN** **PRINCIPAL**