

Disciplines :- Civil Engg.	Semester :- 4th	Name of the teaching Faculty :- Subhashree Behena
Subject :-	No. of days / Per week class allotted :-	Semester from date :- 10.3.2022
Hydraulics and Irrigation Engg.	5P/week	To date :- 10.6.2022
		No. of weeks :- 16

MONTHS	WEEKS	CLASS DAY	THEORY TOPICS	
MARCH	2nd	1st	→ Density, Specific gravity Surface tension, Capillarity viscosity & their uses.	
		2nd	→ Intensity of Pressure, Atmosphere Pressure, Gauge Pressure.	
	3rd	1st	→ Absolute Pressure & vacuum Pressure. Relationship between atmospheric Pressure.	
		2nd	→ Vacuum Pressure & gauge Pressure. Pressure head, Pressure gauge, Pressure exerted on an immersed Surface :-	
			3rd	→ Total Pressure, Resultant Pressure

MONTHS	WEEKS	CLASS DAY	THEORY TOPIC
	4th	1st	→ Expression for total pressure exerted on horizontal & vertical surface.
		2nd	→ Basic equation of fluid flow & their application:- Rate of discharge, equation of continuity of liquid flow.
		3rd	→ Total energy of a liquid in motion, Potential, Kinetic & Pressure
		4th	→ Bernoulli's Theorem & its limitations. Practical application of Bernoulli's equation
			<u>Flow over Notches and weirs</u>
		5th	→ Notches, weirs, types of notches and weirs.
	5th	1st	→ Discharge through different types of notches and weirs. their application
		2nd	<u>Types of flow through the pipes</u> → Uniform and non-uniform laminar & turbulent flow steady & unsteady.
		3rd	→ Reynold's number and its application.

MONTHS	WEEKS	CLASS DAY	THEORY TOPIC
APRIL	1st	1st	Losses of head of a liquid flowing through pipes:- → Different types of major & minor losses.
	2nd	1st	→ Simple numerical problems on losses due to friction using Darcy's equation. Total energy lines & hydraulic gradient lines.
			<u>Flow through the open channel</u>
		2nd	→ Types of channel section- Rectangular, trapezoidal and circular
		3rd	→ Discharge formula, Chezy's and Mannings equation. Best economical section
		4th	<u>Types of pumps</u> → Centrifugal pump:- Basic Principle, operation, Discharge
		5th	→ Horse Power & efficiency
	3rd	1st	→ Reciprocating pump:- Types, operation, Discharge, horse Power & efficiency.
		2nd	→ Hydrology cycle



MONTHS	WEEKS	CLASS DAY	THEORY TOPIC
		3rd	→ Rainfall - Types, Intensity
		4th	→ Hyetograph, Estimation of rainfall.
	4th	1st	→ Rain gauges & its types.
		2nd	→ Concept of catchment area Types, Run-off.
		3rd	→ Estimation of flood discharge by Dickens formula.
		4th	→ Estimation of flood discharge by Ryve's formula. Doubt cleaning class.
		5th	→ Class Test
	5th	1st	→ Definition of Irrigation Necessity, Benefits of Irrigation, Types of Irrigation
		2nd	→ Crop season, Duty, Delta Base Period. Relationship between Duty, Delta & Base Period.
		3rd	→ Overlap allowance, Kharif crops, Rabi crops.
		4th	→ Gross command area, Culturable command area.

MONTHS	WEEKS	CLASS DAY	THEORY TOPIC	
		5th	→ Doubt cleaning class & Revision class.	
MAY	1st	1st	→ Intensity of Irrigation Irrigable area, Time factor, Crop Ratio.	
		2nd	→ Canal irrigation, Types of canal, Loss of water in canals.	
		3rd	→ Perennial Irrigation. Different components of irrigation canal & their function.	
		4th	→ Sketch of different canal cross-section, classification of canals according to their alignment.	
		2nd	1st	→ Various types of canal lining. Advantages & disadvantages.
		2nd	→ Causes & effects of water logging. Detection, Prevention Remedies.	
		3rd	→ Detection, Prevention, Remedies Necessity of diversion head work.	
		4th	→ Objectives of diversion head work. Weirs, Barrages.	

MONTHS	WEEKS	CLASS DAY	THEORY TOPIC
		5th	→ General layout, Functions of different kinds of barrage
	3rd	1st	→ Silting, Scouring, Functions of regulatory structures.
		2nd	→ Functions and Necessity of cross drainage works.
		3rd	→ Doubt clearing class.
		4th	→ Revision class.
	4th	1st	→ Adeduct
		2nd	→ Siphone
		3rd	→ Suffer Passage
		4th	→ Level Crossing
		5th	→ Concept of each with help of neat sketch.
	5th	1st	→ Necessity of Storage reservoirs
JUNE	1st	1st	→ Types of dams.
		2nd	→ Earthendam - Types, Description
		2nd	→ Causes of failure and Protection measure.

MONTHS	WEEKS	CLASS DAY	THEORY TOPIC
	2nd	1st	→ spillways - Type (with sketch)
		2nd	→ Necessity
		3rd	→ Class Test
		4th	→ Doubt clearing class.