

DISCIPLINE	SEMESTER	NAME OF THE TEACHING FACULTY
CIVIL ENGINEERING	1 ST	Mrs. PRANATI PANDA, GT (CIVIL)
SUB - HYDRAULICS & IRRIGATION ENGG.		NO. OF DAYS PER WEEK CLASS ALLOTTED :- 03
NO. OF WEEKS:- 15 NOS.		COMMENCEMENT DATE - FEB 14, 2023(SUMMER)
WEEKS	CLASS DAYS	THEORY TOPICS
1 ST WEEK	1 ST	Properties of fluid: density, specific gravity
	2 nd	surface tension, capillarity.
	3 rd	Gauge pressure, absolute pressure and vacuum pressure;
	4 th	surface tension, capillarity.
	5 TH	Pressure and its measurements: intensity of pressure, atmospheric pressure.
2 ND WEEK	1 ST	Relationship between atmospheric pressure
	2 nd	absolute pressure and gauge pressure
	3 rd	pressure head, pressure gauges
	4 th	Pressure exerted on an immersed surface: Total pressure, resultant pressure
	5 th	expression for total pressure exerted on horizontal & vertical surface
3 RD WEEK	1 ST	Basic equation of fluid flow and their application: Rate of discharge, equation of continuity of liquid flow, total energy of a liquid in motion: potential
	2 nd	Practical applications of Bernoulli's equation, Neumerical problem solve
	3 rd	Flow over Notches and Weirs: Notches, Weirs, types of notches and weirs
	4 th	Discharge through different types of notches and weirs-their application (No Derivation)
	5 th	Types of flow through the pipes: uniform and non uniform; laminar and turbulent
4 TH WEEK	1 ST	steady and unsteady; Reynold's number and its application
	2 nd	Losses of head of a liquid flowing through pipes: Different types of major and minor losses. Simple numerical problems on losses due to friction using Darcy's equation, Neumerical problem solve
	3 rd	Total energy lines & hydraulic gradient lines
	4 th	5 Flow through the Open Channels: Types of channel sections-rectangular, trapezoidal and circular
	5 th	discharge formulae- Chezy's and Manning's equation,
	1 ST	Best economical section, Neumerical problem solve
5 th WEEK	2 nd	Centrifugal pump: basic principles
	3 rd	operation, discharge, horse power & efficiency.
	4 th	Reciprocating pumps: types, operation, discharge, horse power & efficiency
	PART: B (Irrigation Engineering)	
	5 th	Hydrology Cycle, Rainfall: types, intensity, hyetograph
6 th WEEK	1 ST	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	Definition of irrigation, necessity, benefits of irrigation, types of irrigation
	3 rd	Crop season, Duty, Delta and base period their relationship, overlap allowance, kharif and rabi crops

	4th	Neumerical problem solve
	5th	Gross command area, culturable command area, Intensity of Irrigation
7th WEEK	1ST	irrigable area, time factor, crop ratio
	2nd	Canal irrigation, types of canals, loss of water in canals
	3rd	Perennial irrigation
	4th	Different components of irrigation canals and their functions
	5th	Sketches of different canal cross-sections
8th WEEK	1ST	Classification of canals according to their alignment
	2nd	Various types of canal lining – Advantage : and disadvantages
	3rd	Causes and effects of water logging
	4th	detection, prevention and remedies
	5th	Necessity and objectives of diversion head works
9th WEEK	1ST	weirs and barrages
	2nd	General layout, functions of different parts of barrage
	3rd	Silting and scouring
	4th	Functions of regulatory structures
	5th	Previous year question discussion
10th WEEK	1ST	Previous year question discussion
	2nd	Functions and necessity of Cross drainage works
	3rd	Aqueduct, siphon
	4th	super passage, level crossing
	5th	Concept of each with help of neat sketch
11th WEEK	1ST	Previous year question discussion
	2nd	Previous year question discussion
	3rd	INTRODUCTION TO DAMS
	4th	Necessity of storage reservoirs
	5th	types of dams
12th WEEK	1ST	Earthen dams: types
	2nd	Earthen dams: description
	3rd	Earthen dams: description
	4th	causes of failure
	5th	Protection measures
13th WEEK	1ST	Gravity dam- types
	2nd	Gravity dam- description
	3rd	causes of failure
	4th	Protection measures
	5th	Spillways- Types (With Sketch)
14th WEEK	1ST	Necessity of Spillways
	2nd	REVISION
	3rd	REVISION
	4th	REVISION
	5th	REVISION
15th WEEK	1ST	REVISION
	2ND	Previous years question discussion
	3RD	Neumerical problem solve
	4TH	Question answer session
	5th	Previous years question discussion & Neumerical problem solve

#Panda
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