

DISCIPLINE- CIVIL ENGG.	SEMESTER-4 TH		NAME OF THE TEACHING FACULTY- KAPILENDRA KUMAR SETHY
SUBJECT- H&IE	NO. OF DAYS PER WEEK CLASS ALLOTTED-03/05		SEMESTER FROM DATE-10/03/22 TO DATE-10/06/22 NO. OF WEEKS-16
WEEK	CLASS DAY		THEORY TOPICS
1 ST	1 ST		1.1 Properties of fluid: density, specific gravity, surface tension, capillarity, viscosity and their uses
2 ND	1 ST		1.2 Pressure and its measurements: intensity of pressure, atmospheric pressure, gauge pressure, absolute pressure and vacuum pressure;
	2 ND		1.2 relationship between atmospheric pressure, absolute pressure and gauge pressure; pressure head; pressure gauges.
	3 RD		1.2 relationship between atmospheric pressure, absolute pressure and gauge pressure; pressure head; pressure gauges.
3 RD	1 ST		1.3 Pressure exerted on an immersed surface: Total pressure, resultant pressure, expression for total pressure exerted on horizontal & vertical surface.
	2 ND		2.1 Basic equation of fluid flow and their application: Rate of discharge, equation of continuity of liquid flow.
	3 RD		2.1 total energy of a liquid in motion- potential, kinetic & pressure, Bernoulli's theorem and its limitations. Practical applications of Bernoulli's equation
4 TH	1 ST		2.2 Flow over Notches and Weirs: Notches, Weirs, types of notches and weirs,
	2 ND		2.2 Discharge through different types of notches and weirs-their application (No Derivation)
	3 RD		2.3 Types of flow through the pipes: uniform and non uniform; laminar and turbulent; steady and unsteady; Reynold's number and its application
5 TH	1 ST		2.4 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,

	2 nd		2.4 Total energy lines & hydraulic gradient lines (Concept Only).
	3 rd		2.5 Flow through the Open Channels: Types of channel sections-rectangular, trapezoidal and circular, discharge formulae- Chezy's and Manning's equation, Best economical section.
6 TH	1 st		3.1 Type of pumps
	2 nd		3.2 Centrifugal pump: basic principles, operation, discharge, horse power & efficiency.
	3 rd		3.3 Reciprocating pumps: types, operation, discharge, horse power & efficiency
7 TH	1 st		1.1 Hydrology Cycle 1.2 Rainfall: types, intensity, hyetograph 1.3 Estimation of rainfall, rain gauges, Its types(concept only),
	2 nd		1.4 Concept of catchment area, types, run-off, estimation of flood discharge by Dicken's and Ryve's formulae
	3 rd		2.1 Definition of irrigation, necessity, benefits of irrigation, types of irrigation 2.2 Crop season
8 TH	1 st		2.3 Duty, Delta and base period their relationship, overlap allowance, kharif and rabi crops
	2 nd		2.4 Gross command area, culturable command area, Intensity of Irrigation, irrigable area, time factor, crop ratio
	3 rd		3.1 Canal irrigation, types of canals, loss of water in canals 3.2 Perennial irrigation

			3.3 Different components of irrigation canals and their functions
9 TH	1 st		3.4 Sketches of different canal cross-sections 3.5 Classification of canals according to their alignment, Various types of canal lining – Advantages and disadvantages
	2 nd		4.1 Causes and effects of water logging, detection, prevention and remedies
	3 rd		5.1 Necessity and objectives of diversion head works, weirs and barrages 5.2 General layout, functions of different parts of barrage
10 TH	1 st		5.3 Silting and scouring 5.4 Functions of regulatory structures
	2 nd		6.3 Concept of transiting –Measurement of horizontal and vertical angles.
	3 rd		6.1 Functions and necessity of Cross drainage works - aqueduct, siphon, super-passage, level crossing
11 TH	1 st		6.1 Functions and necessity of Cross drainage works - aqueduct, siphon, super-passage, level crossing
	2 nd		6.1 Functions and necessity of Cross drainage works - aqueduct, siphon, super-passage, level crossing
	3 rd		6.1 Functions and necessity of Cross drainage works - aqueduct, siphon, super-passage, level crossing
12 TH	1 st		6.1 Functions and necessity of Cross drainage works - aqueduct, siphon, super-passage, level crossing

	2 nd		6.2 Concept of each with help of neat sketch
	3 rd		6.2 Concept of each with help of neat sketch
13 TH	1 st		6.2 Concept of each with help of neat sketch
	2 nd		6.2 Concept of each with help of neat sketch
	3 rd		7.1 Necessity of storage reservoirs, types of dams 7.2 Earthen dams: types, description, causes of failure and protection measures.
14 TH	1 st		7.1 Necessity of storage reservoirs, types of dams 7.2 Earthen dams: types, description, causes of failure and protection measures.
	2 nd		7.3 Gravity dam- types, description, Causes of failure and protection measures
	3 rd		7.3 Gravity dam- types, description, Causes of failure and protection measures
15 TH	1 ST		7.4 Spillways- Types (With Sketch) and necessity
	2 ND		7.4 Spillways- Types (With Sketch) and necessity

	3 RD		7.4 Spillways- Types (With Sketch) and necessity
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