LESSON PLAN FOR SUMMER SESSION (2024-25)

PROGRAMME : CIVIL ENGINEERING	NAME OF THE FACULTY: Mr. ASHIRBAD ANAND
COURSE NAME : HYDRAULICS & IRRIGATION ENGINEERING	SESSION : 2024-25
COURSE CODE : TH.2	DATE : 04/02/25 To 17/05/25
SEMESTER : 4TH	
PERIODS/WEEK: 5	
TOTAL PERIODS:75	

WEEK	PERIODS	UNIT	TOPICS
Feb. 1st Week	1	Part-A 1	**HYDROSTATICS:** 1.1 Properties of fluid: density, specific gravity, surface tension, capillarity, viscosity and their uses
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	4	Part-B 1	**HYDROLOGY** 1.1 Hydrology Cycle 1.2 Rainfall: types, intensity, hyetograph
	5		1.3 Estimation of rainfall, rain gauges, Its types(concept only)
Feb. 2nd Week	6		1.4 Concept of catchment area, types, run-off, estimation of flood discharge by Dicken's and Ryve's formulaeHydrology 1.1 Hydrology Cycle 1.2 Rainfall: types, intensity, hyetograph
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	8	Part-A 1	1.2 Pressure and its measurements: intensity of pressure, atmospheric pressure, gauge pressure, absolute pressure and vacuum pressure; relationship between atmospheric pressure, absolute pressure and gauge pressure; pressure head; pressure gauges.
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Feb. 3rd Week	11		
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	13	Part-A 1	1.3 Pressure exerted on an immersed surface: Total pressure, resultant pressure, expression for total pressure exerted on horizontal & vertical surface.
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Feb. 4th Week	16		
	17		**Monthly Test**
	18	Part-B 1	**Water Requirement of Crops** 2.1 Definition of irrigation, necessity, benefits of irrigation, types of irrigation 2.2 Crop season
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Mar. 1st Week	21		2.3 Duty, Delta and base period their relationship, overlap allowance, kharif and rabi crops
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	23		2.4 Gross command area, culturable command area, Intensity of Irrigation, irrigable area, time factor, crop ratio
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	25		**Monthly Test**
Mar. 2nd Week	26	Part-A 2	**KINEMATICS OF FLUID FLOW:** 2.1 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, kinetic & pressure, Bernoulli's theorem and its limitations. Practical applications of Bernoulli's equation.
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Mar. 3rd Week	31		2.2 Flow over Notches and Weirs: Notches, Weirs, types of notches and weirs, Discharge through different types of notches and weirs-their application (No Derivation)
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Mar. 4th Week	36		2.3 Types of flow through the pipes: uniform and non uniform; laminar and turbulent; steady and unsteady; Reynold's number and its application
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Mar. 5th Week	41		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, Total energy lines & hydraulic gradient lines (Concept Only).
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	45		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.
Apr. 1st Week	46		
	47		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.
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	50	Part-B 3	**FLOW IRRIGATION** 3.1 Canal irrigation, types of canals, loss of water in canals
Apr. 2nd Week	51		3.2 Perennial irrigation 3.3 Different components of irrigation canals and their functions
	52		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
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Apr. 3rd Week	56	**INTERNAL ASSESSMENT EXAMINATION**	
	57	Part-A 3	**PUMPS:** 3.1 Type of pumps 3.2 Centrifugal pump: basic principles, operation, discharge, horse power & efficiency. 3.3 Reciprocating pumps: types, operation, discharge, horse power & efficiency
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	59	Part-B 4	**WATER LOGGING AND DRAINAGE :** 4.1 Causes and effects of water logging, detection, prevention and remedies
	60	Part-B 5	**DIVERSION HEAD WORKS AND REGULATORY STRUCTURES** 5.1 Necessity and objectives of diversion head works, weirs and barrages 5.2 General layout, functions of different parts of barrage 5.3 Silting and scouring 5.4 Functions of regulatory structures
Apr. 4th Week	61		
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	64	Part-B 6	**CROSS DRAINAGE WORKS :** 6.1 Functions and necessity of Cross drainage works - aqueduct, siphon, super passage, level crossing 6.2 Concept of each with help of neat sketch
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May. 1st Week	66		
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	68	Part-B 7	**DAMS** 7.1 Necessity of storage reservoirs, types of dams 7.2 Earthen dams: types, description, causes of failure and protection measures. 7.3 Gravity dam- types, description, Causes of failure and protection measures.
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May. 2nd Week	71		
	72	Part-B 7	7.4 Spillways- Types (With Sketch) and necessity.
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	74		**Previous year question Paper discussion.**
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Concern faculty Signature

HOD
Civil engineering

Academic Coordinator
GP Nabarangpur

Principal
GP Nabarangpur