

DHABALESWAR INSTITUTE OF POLYTECHNIC

LESSON PLAN

Discipline: CIVIL	Semester: 4th	Name of the Teaching Faculty Shriman Kumar Mishra
Subject: TH-2	No. of days per week Class Alloted:	Semester from Dt. 14/02/23 to Dt. 23/05/23 No. of Weeks: 15
Week	Class Day	Theory / Practical Topics
1st week	1st class	1. HYDROSTATIC :- 1.1. Properties of fluid: density, Specific gravity, Surface tension
	2nd class	1.1. Properties of fluid: Capillarity, viscosity and their uses
	3rd class	1.2. Pressure and its measurements; intensity of Pressure, atmospheric pressure, gauge pressure, absolute pressure and vacuum pressure
	4th class	1.2. Pressure and its measurements; Relationship between atmospheric pressure, absolute pressure and gauge pressure
2nd week	1st class	1.2. Pressure and its measurement; Pressure head; Pressure gauges.
	2nd class	1.3. Pressure exerted on an immersed surface: Total pressure, resultant pressure
	3rd class	1.3. Pressure exerted on an immersed surface: Expression for total pressure exerted on horizontal and vertical surface.
	4th class	
3rd week	1st class	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.
	2nd class	
	3rd class	

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4th week	4th	2.1. Kinetic and pressure, Bernoulli's theorem and its limitations. Practical applications of Bernoulli's equation.
	1st class	
	2nd class	
	3rd class	
5th week	4th class	2.2. Flow over notches and weirs; Notches, weirs, types of notches and weirs, Discharge through different types of notches and weirs - their application
	1st Class	
	2nd Class	2.3. Types of flow through the pipes: Uniform and non-uniform; Laminar and turbulent; Steady and unsteady; Reynold's number and its application.
	3rd class	
	4th class	
	5th class	
6th week	6th	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.
	1st class	
	2nd class	
	3rd class	
7th week	4th class	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.
	1st class	
	2nd class	3. <u>PUMPS</u> :-
	4th class	
7th week	1st class	3.1. Types of Pumps
	2nd class	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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8th week		<u>PART - B (Irrigation Engineering)</u>
		<u>1. HYDROLOGY:-</u>
	3rd class	1.1. Hydrology Cycle
	4th class	1.2. Rainfall: types, intensity, hyetograph
9th week	1st class	1.3. Estimation of rainfall, rain gauges its types
	2nd class	1.4. Concept of catchment area, types, run-off, estimation of Flood discharge by Dicken's and Ryve's formula.
		<u>2. WATER REQUIREMENT OF CROPS:-</u>
	3rd class	2.1. Definition of irrigation, necessity, benefits of irrigation, types of irrigation.
10th week	4th class	2.2. Crop season
	1st class	2.3. Duty, Delta and base period their relationship, overlap allowance, Kharif and Rabi crops
	2nd class	2.4. Gross Command area, Culturable Command area, Intensity of irrigation irrigable area, time factor, crop ratio.
		<u>3. FLOW IRRIGATION:-</u>
10th week	3rd class	3.1. Canal irrigation, types of Canals, Loss of water in Canals.
	4th class	3.2. Perennial irrigation
		3.3. Different Components of irrigation Canals and their functions
	1st class	3.4. Sketches of different Canal Cross-Sections
	2nd class	3.5. Classification of Canals according to their alignment, Various types of

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11th week		Canal Lining - Advantages and Disadvantages
	3rd class	4. <u>WATER LOGGING AND DRAINAGE:-</u> 4.1. Causes and effects of water logging, detection, Prevention and remedies.
	4th class	5. <u>DIVERSION HEAD WORKS AND REGULATORY STRUCTURES:-</u> 5.1. Necessity of and objectives of diversion head works, weirs and barrages.
	1st class	5.2. General layout, functions of different parts of barrage.
	2nd class	5.3. Silting and Scouring
12th week	3rd class	5.4. Functions of regulatory structures
	4th class	6. <u>CROSS DRAINAGE WORKS:-</u> 6.1. Functions and necessity of Cross drainage works - aqueduct, siphon, superpassage, level Crossing
	1st class	6.2. Concept of each with help of neat sketch
	2nd class	7. <u>DAMS:-</u> 7.1. Necessity of storage reservoirs, types of dam
13th week	3rd class	7.2. Earthen dams: types, description, causes of failure and protection measures.
	4th class	7.3. Gravity Dam - types, description, causes of failure and protection measures.
14th class	1st class	

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Week	Class Day	Theory / Practical Topics
15th week	2nd class	7.4. Spillways - Types and necessity. Revision class