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Perunur - 2024

JHARSUGUDA ENGINEERING SCHOOL, JHARSUGUDA
DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN
PROGRAMME: DIPLOMA IN CIVIL ENGINEERING

SUBJECT: HYDRAULICS & IRRIGATION ENGINEERING
NAME OF THE FACULTY: SRI AMIT KUMAR SAHU

SEMESTER: 4TH

SRI DHANURAJAYA BEHERA

CHAPTER	WEEK NO.	CLASS DAY	LECTURE NO.	TOPIC TO BE COVERED
1	W1	1	1	HYDROSTATICS: 1.1 Properties Of Fluid : Density, Specific Gravity, Surface Tension, Capillarity, Viscosity And Their Uses Problem Practice
		2	2	
		3	3	
		4	4	
		5	5	
	W2	6	6	1.2 Pressure and its measurements: Intensity Of Pressure, Atmospheric Pressure Gauge Pressure, Absolute Pressure And Vacuum Pressure; Problem Practice Relationship Between Atmospheric Pressure, Absolute Pressure And Gauge Pressure; pressure head, pressure gauges, Problem practice
		7	7	
		8	8	
		9	9	

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2	w3	10	11	1.3 Pressure Exerted On An Immersed Surface: Total Pressure, Resultant Pressure, Problem Practice Expression For Total Pressure Exerted On Horizontal & Vertical Surface	
		11	12		
		12	13		
	w4	13	14	Problem Practice KINEMATICS OF FLUID FLOW: 2.1 Basic equation of fluid flow and their application: Rate Of Discharge, Equation Of Continuity Of Liquid Flow:	
		14	14		
		15	15		
		16	16		
		17	17		
	w5	18	18	Total Energy Of A Liquid In Motion Bernoulli's Theorem And Its Limitations Applications Of Bernoulli's Equation. Problem Practice	
		19	19		
		20	20		
		21	21		
		22	22		
		23	23		
			19	19	2.2 Flow Over Notches And Weirs: Notches, Types Of Notches Discharge Through Different Types Of Notches
			20	20	
			21	21	
			22	22	Weirs, Types Of Weirs Application of Weirs
			23	23	
			23	23	Problem practice

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CHAPTER	WEEK NO.	CLASS DAY	LECTURE NO.	TOPICSTOBECOVERED		
3	W6	24	24	2.3 Types Of Flow Through The Pipes: Uniform And Non Uniform Flow, Laminar And Turbulent; Flow Steady And Unsteady Flow; Reynold's Number		
		25	25			
		26	26			
			27	27	2.4 Losses Of Head Of A Liquid Flowing Through Pipes: Different types of major and minor losses. Darcy's equation, problems on losses due to friction Total energy lines & hydraulic gradient lines	
			28	28		
			29	29		
			30	30		
			31	31		
	W7		31	31	2.5 Flow through the Open Channels: Types of channel sections-rectangular, trapezoidal and circular, Discharge Formulae- Chezy and Manning's Equation 3.1 Type of pumps	
			32	32		
			33	33		
			32	32		3.2 Centrifugal pump: Basic Principles, Operation, Discharge,
			33	33		

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CHAPTER	WEEK NO.	CLASS DAY	LECTURE NO.	TOPICSTOBECOVERED	
1	W8	34	34	B. IRRIGATION ENGINEERING 1.1 Hydrology Cycle	
		35	35		
		36	36		
		37	37		
	W9	38	38	1.2Rainfall: Types, Intensity, Hyetograph 1.3 Estimation Of Rainfall, Rain Gauges, Its Types 1.4 Concept Of Catchment Area, Types, Run-Off, Estimation Of Flood Discharge By Dicken's And Ryve's Formulae	
		39	39		
		40	40		
		41	41		
		42	42		
	2.	W9	43	43	Water Requirement Of Crops 2.1 Definition ,Necessity, Benefits Of Irrigation, Types Of Irrigation Types Of Irrigation 2.2 Crop Season 2.3 Duty, Delta And Base Period Their Relationship, Kharif And Rabi Crops 2.4 GCA, CCA, Intensity Of Irrigation, , Time Factor, Crop Ratio

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CHAPTER	WEEK NO.	CLASS DAY	LECTURE NO.	TOPICS TO BE COVERED
3	W10	44	44	Flow Irrigation 3.1 Canal Irrigation, Types Of Canals, loss of water in canals
		45	45	
		46	46	3.2 Perennial Irrigation
		47	47	3.3 Irrigation Canals And Their Functions
		48	48	3.4 Canal Cross-Sections
		49	49	3.5 Classification Of Canals
		50	50	Various Types Of Canal Lining
		51	51	Advantages and disadvantages Canal Lining
		52	52	WATER LOGGING AND DRAINAGE : 4.1 Causes and effects of water logging
		53	53	Detection, prevention an remedies of water logging
		4	W11	51
52	52			
53	53			

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CHAPTER	WEEK NO.	CLASS DAY	LECTURE NO.	TOPICSTOBECOVERED
5.	W12	54	54	Diversion Head Works 5.1 Necessity And Objectives
		55	55	5.2 Weirs And Barrages
		56	56	5.3 Silting And Scouring
		57	57	5.4 Functions Of Regulatory Structures
		58	58	CROSS DRAINAGE WORKS: 6.1 Functions And Necessity Aqueduct
		59	59	Functions And Necessity Super passage,
		60	60	Functions And Necessity Level Crossing
6.	W13	61	61	Functions And Necessity Siphon,
		62	62	6.2 Neat Sketch Super passage, Level Crossing, Siphon, Aqueduct

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CHAPTER	WEEK NO.	CLASS DAY	LECTURE NO.	TOPIC TO BE COVERED	
7.	W14	63	63	DAMS 7.1 Necessity Of Storage Reservoirs, Types Of Dams Types Of Dams	
		64	64		
		65	65		
		66	66		
	W15	67	67	7.2 Earthen Dams: Types, Description Causes Of Failure And Protection Measures.	
		68	68		
		69	69		
		70	70		
	W15	71	71	7.3 Gravity Dam- Types, Description, Causes Of Failure And Protection Measures.	
		72	72		
		71	71		7.4 Spillways- Types And Necessity.
		72	72		Revision

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Dr. Jyoti K. Patil

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