

GOVT. POLYTECHNIC MAYURBHANJ LESSON PLAN- 2021-22 (SUMMER)

Discipline : CIVIL ENGG.		Semester: 4th Sem	Name of the Teaching Faculty : Padmabhusan Naik	
Subject : H&IE (C210)		No. of Days / per week class allotted : 05	Semester From date : 10.03.2022 To Date : 10.06.2022	
MONTH	Week	Day	Unit	Topics
JANUARY	3rd			PART: A (Hydraulics)
		2nd		1. HYDROSTATICS:
				Properties of fluid: density, specific gravity, Surface tension,
		3rd		Capillarity, viscosity and their uses
		4th		Question Discussion
		5th		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;
	4th	1st		Subash Ch. Bose Jayanti
		2nd		Pressure head; pressure gauges.
		3rd		Question Discussion
		4th		Republic Day
		5th		Pressure exerted on an immersed surface: Total pressure, resultant pressure, Expression for total pressure exerted on horizontal & vertical surface.
	5th	1st		Question Discussion
		2nd		2. KINEMATICS OF FLUID FLOW:
		3rd		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.
	2nd	1st		Question Discussion
2nd			Flow over Notches and Weirs: Notches, Weirs, types of notches and weirs, Discharge through different types of notches and weirs-their application (No Derivation)	
3rd			Question Discussion	
4th			Types of flow through the pipes: uniform and non uniform; laminar and turbulent; Steady and unsteady; Reynold's number and its application	
5th			Basanti Panchami	
3rd	1st		Question Discussion	
	2nd		UNIT-2	
	3rd		Losses of head of a liquid flowing through pipes: Different types of major and minor losses.	
	4th			
		5th		

FEBRUARY	4th	1st	Simple numerical problems on losses due to friction using Darcy's equation,	
		2nd	Total energy lines & hydraulic gradient lines (Concept Only).	
		3rd	Question Discussion	
		4th	Flow through the Open Channels: Types of channel sections-rectangular, trapezoidal and circular,	
		5th	Discharge formulae- Chezy's and Manning's equation, Best economical section. Question Discussion	
	5th	1st	UNIT-3	3. PUMPS: Type of pumps Centrifugal pump: basic principles, Operation, discharge, horse power & efficiency.
		2nd		Reciprocating pumps: types, Operation, discharge, horse power & efficiency Question Discussion
		3rd		CLASS TEST-1
		4th	UNIT-1	PART: B (Irrigation Engineering) 1. Hydrologys: Hydrology Cycle Rainfall: types, intensity, hyetograph
	5th	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 Question Discussion		
	MARCH	1st	UNIT-2	Panchayatiraj Dibas 2. Water Requirement of Crops: Definition of irrigation, necessity, benefits of irrigation, types of irrigation Crop season Duty, Delta and base period their relationship, overlap allowance, kharif and rabi crops
		2nd		3rd
4th				Gross command area, culturable command area, Intensity of Irrigation, irrigable area, time factor, crop ratio
5th				Question Discussion
3rd				Internal Assessment
3rd		4th	3. FLOW IRRIGATION : Canal irrigation, types of canals, loss of water in canals Perennial irrigation	

M	4th	5th	UNIT-3	Different components of irrigation canals and their functions		
		1st		Sketches of different canal cross-sections		
		2nd		Classification of canals according to their alignment, Various types of canal lining – Advantages and disadvantages		
		3rd		Question Discussion		
		4th	UNIT-4	4. WATER LOGGING AND DRAINAGE :		
		4th		Causes and effects of water logging,		
		5th		Detection, prevention and remedies		
		5th	UNIT-5	1st	Dola Purnima	
				2nd	Holi	
				3rd	5. DIVERSION HEAD WORKS AND REGULATORY STRUCTURES:	
4th	Necessity and objectives of diversion head works, weirs and barrages					
4th	General layout, functions of different parts of barrage					
5th	Good Friday					
APRIL	1st	UNIT-5	Utkal Divas			
			1st	Utkal Divas		
			2nd	Silting and scouring		
			3rd	Functions of regulatory structures		
			4th	Question Discussion		
	2nd	UNIT-6	CLASS TEST-2			
			6. CROSS DRAINAGE WORKS :			
			1st	Functions and necessity of Cross drainage works - aqueduct, siphon,		
			2nd	Superpassage, level crossing		
			3rd	Id-UI-Fitre		
	3rd	UNIT-7	4th	Concept of each with help of neat sketch		
			5th	Question Discussion		
			7. DAMS :			
			1st	Necessity of storage reservoirs, types of dams		
			2nd	Ram Navami		
	4th	UNIT-7	3rd	Earthen dams: types, description, causes of failure and protection measures.		
			4th	Gravity dam- types, description, Causes of failure and protection measures.		
			5th	Spillways- Types (With Sketch) and necessity.		
1st			Question Discussion			
2nd			Semester Questions Discussion			
5th	UNIT-7	3rd	Semester Questions Discussion			
		4th	Semester Questions Discussion			
		5th	Semester Questions Discussion			