

GOVT. POLYTECHNIC MAYURBHANJ LESSON PLAN- 2023-24 (SUMMER)

Discipline : CIVIL ENGG.		Semester: 4th Sem	Name of the Teaching Faculty : Padmabhusan Naik		
Subject : H&IE		No. of Days / per week class allotted : 05	Semester From date : 16.01.2024	To Date : 26.04.2024	
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,		
3rd			Discharge through different types of notches and weirs-their application (No Derivation)		
4th			Question Discussion		
5th			Types of flow through the pipes: uniform and non uniform; laminar and turbulent; Steady and unsteady; Reynold's number and its application		
3rd	1st			Basanti Panchami	
	2nd		Question Discussion		
	3rd			UNIT-2	
	4th		Losses of head of a liquid flowing through pipes: Different types of major and minor losses.		
	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	UNIT-3		Reciprocating pumps: types, Operation, discharge, horse power & efficiency Question Discussion
	3rd				CLASS TEST-1
MARCH	1st	5th	UNIT-1		
					PART: B (Irrigation Engineering)
					1. Hydrologys:
					Hydrology Cycle Rainfall: types, intensity, hyetograph
	2nd	1st	UNIT-2		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
					Panchayatiraj Dibas
		3rd	UNIT-2		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
		3rd	1st	UNIT-2	
	Gross command area, culturable command area, Intensity of Irrigation, irrigable area, time factor, crop ratio Question Discussion				
2nd	UNIT-2			Internal Assessment	
				3. FLOW IRRIGATION :	
4th	UNIT-2		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 :
	5th	Causes and effects of water logging, Detection, prevention and remedies Question Discussion		
	5th	1st	UNIT-5	Dola Purnima
		2nd		Holi
		3rd		5. DIVERSION HEAD WORKS AND REGULATORY STRUCTURES:
		4th		Necessity and objectives of diversion head works, weirs and barrages General layout, functions of different parts of barrage
5th		Good Friday Utkal Divas		
APRIL	1st	1st	UNIT-5	Utkal Divas
		2nd		Silting and scouring
		3rd		Functions of regulatory structures
		4th		Question Discussion
		5th		CLASS TEST-2
	2nd	1st	UNIT-6	6. CROSS DRAINAGE WORKS :
		2nd		Functions and necessity of Cross drainage works - aqueduct, siphon, Superpassage, level crossing
		3rd		Id-UI-Fitre
		4th		Concept of each with help of neat sketch
		5th		Question Discussion
	3rd	1st	UNIT-7	7. DAMS :
		2nd		Necessity of storage reservoirs, types of dams
		3rd		Ram Navami
		4th		Earthen dams: types, description, causes of failure and protection measures.
		5th		Gravity dam- types, description, Causes of failure and protection measures.
	4th	1st	UNIT-7	Spillways- Types (With Sketch) and necessity.
		2nd		Question Discussion
		3rd		Semester Questions Discussion
		4th		Semester Questions Discussion
		5th		Semester Questions Discussion