

GOVT. POLYTECHNIC MAYURBHANJ LESSON PLAN- 2022-23 (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 : 14.02.2023	To Date : 23.05.2023	
MONTH	Week	Day	Unit	Topics	
FEBRUARY	3rd	2nd	UNIT-2	PART: A (Hydraulics)	
				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	2nd		Pressure head; pressure gauges.	
		3rd		Question Discussion	
		4th		Pressure exerted on an immersed surface: Total pressure, resultant pressure, Expression for total pressure exerted on horizontal & vertical surface.	
		5th		Question Discussion	
	5th	1st			
		2nd		2. KINEMATICS OF FLUID FLOW:	
		1st		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,
				4th	Bernoulli's theorem and its limitations. Practical applications of Bernoulli's equation.
				5th	Question Discussion
2nd		1st	Flow over Notches and Weirs: Notches, Weirs, types of notches and weirs,		
		2nd	Dola Purnima		
		3rd	Holi		
		4th	Discharge through different types of notches and weirs-their application (No Derivation)		
		5th	Question Discussion		
3rd		1st	Types of flow through the pipes: uniform and non uniform; laminar and turbulent;		
		2nd	Steady and unsteady; Reynold's number and its application		
		3rd	Question Discussion		
		4th	Losses of head of a liquid flowing through pipes: Different types of major and minor losses.		
		5th	Simple numerical problems on losses due to friction using Darcy's equation, Total energy lines & hydraulic gradient lines (Concept Only).		
			1st		

MARCH	4th	2nd		Question Discussion
		3rd		Flow through the Open Channels: Types of channel sections-rectangular, trapezoidal and circular,
		4th		Discharge formulae- Chezy's and Manning's equation, Best economical section.
		5th	UNIT-3	Question Discussion
	5th	3. PUMPS: Type of pumps Centrifugal pump: basic principles, Operation, discharge, horse power & efficiency.		
	5th	1st		Reciprocating pumps: types, Operation, discharge, horse power & efficiency Question Discussion
		2nd	UNIT-1	PART: B (Irrigation Engineering) 1. Hydrologys: Hydrology Cycle Rainfall: types, intensity, hyetograph
		3rd		Estimation of rainfall, rain gauges, Its types(concept only),
		4th		Ram Navami
		5th		Concept of catchment area, types, run-off, estimation of flood discharge by Dicken's and Ryve's formulae Question Discussion
APRIL	2nd	1st	UNIT-2	2. Water Requirement of Crops: Definition of irrigation, necessity, benefits of irrigation, types of irrigation Crop season
		2nd		Duty, Delta and base period their relationship, overlap allowance, kharif and rabi crops
		3rd		Gross command area, culturable command area, Intensity of Irrigation, irrigable area, time factor, crop ratio
		4th		Question Discussion
	5th		Good Friday	
	3rd	1st		Internal Assessment
		1st	UNIT-3	3. FLOW IRRIGATION : Canal irrigation, types of canals, loss of water in canals Perennial irrigation
		2nd		Different components of irrigation canals and their functions
		3rd		Sketches of different canal cross-sections
		4th		Classification of canals according to their alignment, Various types of canal lining – Advantages and disadvantages

		5th		Mahabishuba Sankranti/Dr. B.R Ambedkar Jayanti
	4th	1st	UNIT-4	Question Discussion
		2nd		4. WATER LOGGING AND DRAINAGE :
		3rd		Causes and effects of water logging, Detection, prevention and remedies
		4th		Question Discussion
		5th		5. DIVERSION HEAD WORKS AND REGULATORY STRUCTURES:
	5th	1st	UNIT-6	Necessity and objectives of diversion head works, weirs and barrages
		2nd		General layout, functions of different parts of barrage
		3rd		Silting and scouring
		4th		Functions of regulatory structures
		5th		Question Discussion
	1st	1st	UNIT-7	6. CROSS DRAINAGE WORKS :
		2nd		Functions and necessity of Cross drainage works - aqueduct, siphon, Superpassage, level crossing
		3rd		Concept of each with help of neat sketch
		4th		Question Discussion
		5th		7. DAMS :
MAY	2nd	1st	UNIT-7	Necessity of storage reservoirs, types of dams
		2nd		Earthen dams: types, description, causes of failure and protection measures.
		3rd		Buddha Purnima
		4th		Gravity dam- types, description, Causes of failure and protection measures.
		5th		Spillways- Types (With Sketch) and necessity.
				Question Discussion
				Semester Questions Discussion
				Semester Questions Discussion

Subject
Expert

HOD
Civil Department

Academic
Co-ordinator