ARYAN SCHOOL OF ENGINEERING & TECHNOLOGY

Dicipline: Civil Engineering	Semester: 4th	Name of the Teaching Faculty: Dibyajyoti Nayak	
Subject: Hydraulic & Irrigation Engg	No of Days/Week Class Allotted: 5	Semester From date: 13.2.22 To date 23 C. 23	No.of Weeks:

WEEK	Class Day	Theory Topics
1	1st	Properties of fluid: density, Specific gravity, Surface tension
	2nd	Capilarity, Viscosity and their Uses.
	3rd	Pressure Measurement : intensity of Pressure, atmospheric pressure
	4th	Gauge pressure
	5th	Absolute Pressure & Vacuum Pressure
1	1st	Vacuum Pressure
	2nd	Relationship between atmospheric Pressure, absolut pressu & Gauge Press
	3rd	Pressure head
	4th	Pressure gauge
	5th	Pressure exerted on an immersed surface: Total pressure
1	1st	Resultant Pressure
	2nd	Expression for total Pressure exerted on horizontal
	3rd	Expression for total pressure exerted on Vertical surfa
	4th	Problem Practice
	5th	Problem Practice

WEEK	Class Day	Theory Topics
	1st	Basic equation of fluid flow and their apllication : Rate of discharge
	2nd	Equation of Continuity of liquid flow.
	3rd	Total Energy of a liquid in motion - Potential,
	4th	Kinetic and Pressure
	5th	Problems
	1st	Problem
	2nd	Bernoullis theorem and its limitations
	3rd	Practical applications of Bernoullis equation
	4th	Problems.
	5th	Flow over Notches and Weirs : Notches weirs
	1st	Types of notches and weirs
	2nd	Discharge through different types of nitches.
	3rd	Weirs - their application
	4th	Types of flow through the pipes : Uniform & Non-uniform
	5th	Laminar and turbulent ; steady & unsteady

EK	Class Day	Theory Topics
	1st	Rain fall : types , intensity , hyetograph
	2nd	Estimation of rainfall , rain gauge , its types
	3rd	Concept of Catchment area , types , run-off , estimation of flood discharge by Dicken's & Fyre's formulae.
	4th	Water Requirement of Crops Definition of Irrigation , necessity , benefits of irrigation ,
	5th	types of irrigation , crop season , duty , delta & base period their relationship
	1st	Overlap allowance , Kharif and rabi crops , Gross command area
	2nd	Culturable command area , Intensity of irrigation , irrigable area , time factor , crop ratio
	3rd	Flow Irrigation : Canal irrigation , types of canals , loss of water in canals
	4th	Perennial Irrigation
	5th	Different components of irrigation canal and their functions
	1st	Sketches of different canal Cross - sections .
	2nd	Classification of Canals according to their alignment
	3rd	Various types of Canal lining
	4th	Advantages and disadvantages
	5th	Topic Discussion

ARYAN SCHOOL OF ENGINEERING & TECHNOLOGY

Dicipline: Civil Engineering	Semester: 4th	Name of the Teaching Faculty: Smaranika Pradhan	
Subject: Hydraulic & Irrigation Engg.	No of Days/Week Class Allotted:____	Semester From date:_____ To date_____	No.of Weeks:

WEEK	Class Day	Theory Topics
	1st	Reynold's number and its application
	2nd	Losses of head of a liquid flowing through pipes : Different types of major losses
	3rd	Different types of minor losses
	4th	Mumerical Problems on losses due to friction using Darcy Eqn
	5th	Total Energy line & hydraulic gradient lines
	1st	Flow through the Open Channels : Types of channel sections - rectangular, trapezoidal
	2nd	Flow through open channel circular section
	3rd	Discharge formulae - Chezy's & Manning's eqn, Best economical section
	4th	Pumps : Types of Pumps
	5th	Centrifugal Pump : Basic Principles , Operation
	1st	Discharge , horse power & efficiency
	2nd	Reciprocating Pump : Types , Operation
	3rd	Discharge, horse power & efficiency
	4th	Topic discussion
	5th	Hydrology cycle

ARYAN SCHOOL OF ENGINEERING & TECHNOLOGY

cipline:		Semester: 4th	Name of the Teaching Faculty:	
Subject:		No of Days/Week Class Allotted:____	Semester From date:_____ To date_____	No.of Weeks:

WEEK	Class Day	Theory Topics
	1st	Water logging and drainage Causes and effects of water logging, detection
	2nd	Prevention and remedies
	3rd	Diversion head Works and Regulatory structures : Necessity and objectives of diversion head works.
	4th	Weirs and barrages
	5th	General layout, functions of different parts of barrage
	1st	Functions of different parts of barrages
	2nd	Silting and Scouring
	3rd	Functions of regulatory structures
	4th	Tupe discussion
	5th	Cross Drainage Works : Functions and necessity of cross drainage work-Siphon
	1st	Aqueduct
	2nd	Super-passage
	3rd	Level Crossing
	4th	Siphon (Neat sketch)
	5th	Concept of each with help of neat sketch aqueduct

WEEK	Class Day	Theory Topics
	1st	DAMS : Necessity of storage reservoirs.
	2nd	Types of dams
	3rd	Earthen dams : types, description
	4th	Causes of failure & protection measures.
	5th	
	1st	
	2nd	
	3rd	
	4th	
	5th	
	1st	
	2nd	
	3rd	
	4th	
	5th	

10/2/23

10/2/23