NILASAILA INSTITUTE OF SCIENCE & TECHNOLOGY
SERGARH-756060, BALASORE (ODISHA)
(Approved by AICTE& affiliated to SCTE&VT, Odisha)

LESSON PLAN

SUBJECT : Th-2(Hydraulic and Irrigation engg)

Name Of The Faculty :- Er. Abhilipsa Das
Branch :- Civil Engineering
Session :- 2024-25
Semester :- 4th
Examination :- 2025(S)

CHAPTER WISE DISTRIBUTION OF PERIODS

Sl.No.	Name of the chapter as per the Syllabus	No. of Periods as per the Syllabus	No. of periods actually needed
PART: A (HYDRAULICS & MACHINES)			
1	Hydrostatics	12	12
2	Kinematics Of Fluid Flow	18	18
3	Pumps	5	5
PART: B (IRRIGATION ENGG)			
1	Hydrology	4	4
2	Water Requirement Of Crops	4	4
3	Flow Irrigation	7	7
4	Water Logging And Drainage	2	2
5	Diversion Head Works And Regulatory Structures	8	7
6	Cross Drainage Works :	7	6
7	Dams	8	7
8	Total Period:	75	72

A. Das 01/9/25
Sign of Faculty

1/9/25
Sign of H.O.D.

Discipline: CIVIL ENGINEERING	Semester: 4th	**Name of the Teaching Faculty:** Er.Abhilipsa Das
		SESSION : 2024-25 **EXAMINATION :** 2025(S)
Week	**Class Day**	**Topics to be Covered**
1st	1st	**Hydrostatics** 1.1Property of fluid :Density,Sp.Gravity,Surface tension ,Capillarity,Viscosity & their uses
	2nd	**Hydrostatics** 1.1Property of fluid :Density,Sp.Gravity,Surface tension ,Capillarity,Viscosity & their uses
	3rd	**Hydrostatics** 1.1Property of fluid :Density,Sp.Gravity,Surface tension ,Capillarity,Viscosity & their uses
	4th	**1.2 Pressure and its measurements -** intensity of pressure, atmospheric pressure, gauge pressure, absolute pressure and vacuum pressure
	5th	**1.2 Pressure and its measurements -** intensity of pressure, atmospheric pressure, gauge pressure, absolute pressure and vacuum pressure
2nd	1st	**1.2 Pressure and its measurements -** intensity of pressure, atmospheric pressure, gauge pressure, absolute pressure and vacuum pressure
	2nd	**1.2 Pressure and its measurements -** intensity of pressure, atmospheric pressure, gauge pressure, absolute pressure and vacuum pressure
	3rd	**1.2 Pressure and its measurements -** intensity of pressure, atmospheric pressure, gauge pressure, absolute pressure and vacuum pressure
	4th	1.3 **Pressure exerted on an immersed surface pressure head;** Total pressure ,Resultant pressure,Expression for total pressure exerted on horizontal and vertical surface
	5th	1.3 **Pressure exerted on an immersed surface pressure head;** Total pressure ,Resultant pressure,Expression for total pressure exerted on horizontal and vertical surface
3rd	1st	1.3 **Pressure exerted on an immersed surface pressure head;** Total pressure ,Resultant pressure,Expression for total pressure exerted on horizontal and vertical surface
	2nd	1.3 **Pressure exerted on an immersed surface pressure head;** Total pressure ,Resultant pressure,Expression for total pressure exerted on horizontal and vertical surface
	3rd	**KINEMATICS OF FLUID FLOW** 2.1 Basic equation of fluid flow and their application
3rd	4th	**KINEMATICS OF FLUID FLOW** 2.1 Basic equation of fluid flow and their application
	5th	**KINEMATICS OF FLUID FLOW** 2.1 Basic equation of fluid flow and their application

4th	1st	**KINEMATICS OF FLUID FLOW** 2.1 Basic equation of fluid flow and their application
	2nd	**KINEMATICS OF FLUID FLOW** 2.1 Basic equation of fluid flow and their application Rate of discharge, equation of continuity of liquid flow
	3rd	**KINEMATICS OF FLUID FLOW** 2.2 Flow over Notches and Weirs Notches, Weirs, types of notches and weirs
	4th	2. **KINEMATICS OF FLUID FLOW** 2.2 Flow over Notches and Weirs Discharge through different types of notches and weirs-their application (No Derivation)
	5th	2. **KINEMATICS OF FLUID FLOW** 2.2 Flow over Notches and Weirs Discharge through different types of notches and weirs-their application (No Derivation)
5th	1st	2. **KINEMATICS OF FLUID FLOW** 2.2 Flow over Notches and Weirs Discharge through different types of notches and weirs-their application (No Derivation)
	2nd	2. **KINEMATICS OF FLUID FLOW** 2.3 Types of flow through the pipes uniform and non uniform; laminar and turbulent; steady and unsteady
	3rd	2. **KINEMATICS OF FLUID FLOW** 2.3 Types of flow through the pipes uniform and non uniform; laminar and turbulent; steady and unsteady
	4th	2. **KINEMATICS OF FLUID FLOW** 2.3 Types of flow through the pipes uniform and non uniform; laminar and turbulent; steady and unsteady
	5th	2. **KINEMATICS OF FLUID FLOW** 2.3 Types of flow through the pipes uniform and non uniform; laminar and turbulent; steady and unsteady
6th	1st	**2. KINEMATICS OF FLUID FLOW** 2.4 Losses of head of a liquid flowing through pipes
	2nd	**2. KINEMATICS OF FLUID FLOW** 2.4 Losses of head of a liquid flowing through pipes
	3rd	**2. KINEMATICS OF FLUID FLOW** 2.4 Losses of head of a liquid flowing through pipes Simple numerical problems on losses due to friction using Darcy's equation
	4th	**2. KINEMATICS OF FLUID FLOW** 2.4 Losses of head of a liquid flowing through pipes Simple numerical problems on losses due to friction using Darcy's equation
	5th	**2. KINEMATICS OF FLUID FLOW** 2.4 Losses of head of a liquid flowing through pipes Simple numerical problems on losses due to friction using Darcy's equation
7th	1st	**3. PUMPS** 3.1 Type of pumps
	2nd	**3. PUMPS** 3.2 Centrifugal pump
	3rd	**3. PUMPS** 3.2 Centrifugal pump

7th	4th	**3. PUMPS** 3.3 Reciprocating pumps Types,operation, discharge, horse power & efficiency
	5th	**3. PUMPS** 3.3 Reciprocating pumps
8th	1st	**1.HYDROLOGY** 1.1 Hydrology Cycle
	2nd	**1.HYDROLOGY** 1.2 Rainfall: types, intensity, hyetograph
	3rd	**1.HYDROLOGY** 1.3 Estimation of rainfall, rain gauges, Its types(concept only),
	4th	**1.HYDROLOGY** 1.4 Concept of catchment area, types, run-off, estimation of flood discharge by Dicken's
	5th	**2. Water Requirement of Crops** 2.1 Definition of irrigation, necessity, benefits of irrigation, types of irrigation
9th	1st	**2. Water Requirement of Crops** 2.2 Crop season
	2nd	**2. Water Requirement of Crops** 2.3 Duty, Delta and base period their relationship, overlap allowance, kharif and rabi crops
	3rd	**2. Water Requirement of Crops** 2.4 Gross command area, culturable command area, Intensity of Irrigation, irrigable area, time factor, crop ratio
	4th	**3. FLOW IRRIGATION** 3.1 Canal irrigation, types of canals, loss of water in canals
	5th	**3. FLOW IRRIGATION** 3.2 Perennial irrigation
10th	1st	**3. FLOW IRRIGATION** 3.3 Different components of irrigation canals and their functions
	2nd	**3. FLOW IRRIGATION** 3.3 Different components of irrigation canals and their functions
	3rd	**3. FLOW IRRIGATION** 3.4 Sketches of different canal cross-sections
	4th	**3. FLOW IRRIGATION** 3.5 Classification of canals according to their alignment, Various types of canal lining –
	5th	**3. FLOW IRRIGATION** 3.1 Canal irrigation, types of canals, loss of water in canals 3.5 Classification of canals
11th	1st	**4. WATER LOGGING AND DRAINAGE** 4.1 Causes and effects of water logging, detection, prevention and remedies
	2nd	**4. WATER LOGGING AND DRAINAGE** 4.1 Causes and effects of water logging, detection, prevention and remedies
	3rd	**INTERNAL ASSESMENT.**
	4th	**INTERNAL ASSESMENT.**
11th	5th	5. DIVERSION HEAD WORKS AND REGULATORY STRUCTURES 5.1 Necessity and objectives of diversion head works, weirs and barrages
	1st	**5. DIVERSION HEAD WORKS AND REGULATORY STRUCTURES** 5.1 Necessity and objectives of diversion head works, weirs and barrages

12th	2nd	**5. DIVERSION HEAD WORKS AND REGULATORY STRUCTURES** 5.2 General layout, functions of different parts of barrage
	3rd	**5. DIVERSION HEAD WORKS AND REGULATORY STRUCTURES** 5.2 General layout, functions of different parts of barrage
	4th	**5. DIVERSION HEAD WORKS AND REGULATORY STRUCTURES** 5.3 Silting and scouring
	5th	**5. DIVERSION HEAD WORKS AND REGULATORY STRUCTURES** 5.3 Silting and scouring
13th	1st	**5. DIVERSION HEAD WORKS AND REGULATORY STRUCTURES** 5.4 Functions of regulatory structures
	2nd	**5. DIVERSION HEAD WORKS AND REGULATORY STRUCTURES** 5.4 Functions of regulatory structures
	3rd	**6. CROSS DRAINAGE WORKS** Functions and necessity of Cross drainage works - aqueduct (concept with help of neat
	4th	**6. CROSS DRAINAGE WORKS** Functions and necessity of Cross drainage works - aqueduct (concept with help of neat
	5th	**6. CROSS DRAINAGE WORKS** Functions and necessity of Cross drainage works - siphon (concept with help of neat
14th	1st	**6. CROSS DRAINAGE WORKS** Functions and necessity of Cross drainage works - siphon (concept with help of neat
	2nd	**6. CROSS DRAINAGE WORKS** Functions and necessity of Cross drainage works - superpassage (concept with help of neat sketch)
	3rd	**6. CROSS DRAINAGE WORKS** Functions and necessity of Cross drainage works - level crossing (concept with help of neat sketch)
	4th	**6. CROSS DRAINAGE WORKS** Functions and necessity of Cross drainage works - level crossing (concept with help of neat sketch)
	5th	**7. DAMS** 7.1 Necessity of storage reservoirs, types of dams
15th	1st	**7. DAMS** 7.2 Earthen dams: types, description, causes of failure and protection measures
	2nd	**7. DAMS** 7.2 Earthen dams: types, description, causes of failure and protection measures
	3rd	**7. DAMS** 7.2 Earthen dams: types, description, causes of failure and protection measures
	4th	**7. DAMS** 7.3 Gravity dam- types, description, Causes of failure and protection measures
	5th	**REVISION**

A.D.G. 01/12/25
Sign of Faculty

01/12/25
Sign of H.O.D.