

GOVERNMENT POLYTECHNIC, SAMBALPUR GOVERNMENT POLYTECHNIC, SAMBALPUR (RENGALI)
LESSON PLAN OF TH-2 Hydraulics and Irrigation Engineering FOR ATH SEM/ CIVIL ENGG, SUMMER 2023 W.E.F. 14.02.2023
 Faculty: Miss. Pinky Sahu, PTG Name of the Faculty: Miss. Pinky Sahu, PTG in Civil Engineering

Sl. No.	WEEK NO.	DATE	PERIODS TOPIC/NO PER TOPIC	PERIODS AVAILABLE PER WEEK	PERIODS ASSIGNED PER TOPIC	PERIODS AVAILABLE PER WEEK
1	W-1	14.02.23 TO 17.02.23	1.1 5	5	5	5
PART: A (Hydraulics) 1. HYDROSTATICS:			1.1 5	5	5	5
Properties of fluids: density, specific gravity, surface tension, capillarity, viscosity and			1.1 5	5	5	5
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; pressure head; pressure gauges.			5	5	5	5
Pressure exerted on an immersed surface: Total pressure, resultant pressure, expression for total pressure exerted on horizontal & vertical surface.			2	2	5	5
2. KINEMATICS OF FLUID FLOW:						
2.1: 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.			5	5	5	5
2.2: Flow over Notches and Weirs: Notches, Weirs, types of notches and weirs, Discharge through different types of notches and weirs-their application (No Derivation)			5	5	5	5
2.3: Types of flow through the pipes: uniform and non uniform; laminar and turbulent; steady and unsteady; Reynold's number and its application			5	5	5	5
2.4: Losses of head of a liquid flowing through pipes: Different types of major and minor losses. Simple numerical problems on losses due to friction using Darcy's equation, Total energy lines & hydraulic gradient lines (Concept Only).			8	8	5 + 3 Extra	5 + 3 Extra
2.5: Flow through the Open Channels: Types of channel sections-rectangular, trapezoidal and circular, discharge formulae- Chezy's and Manning's equation, Best economical section.			8	8	5 + 3 Extra	5 + 3 Extra

W-7	27.03.23 TO 01.04.23	<p>3. PUMPS: Type of pumps Centrifugal pump: basic principles, operation, discharge, horse power & efficiency. 3.3 Reciprocating pumps: types, operation, discharge; horse power & efficiency</p>	27.03.23 TO	<p>3. PUMPS: Type of pumps 3.2</p>	3.1	5	3.2 3.1
W-8	03.04.23 TO 08.04.23	<p>PART: B (Irrigation Engineering): Hydrology Hydrology Cycle types, intensity, hyetograph rainfall; rain gauges; its types (concept only), catchment area, types, run-off, estimation of flood discharge by Dicken's and Ryve's formulae 2.1 Definition of irrigation, necessity, benefits of irrigation, types of irrigation, necessity, benefits of irrigation, types of irrigation</p>	03.04.23 TO 08.04.23	<p>PART: B (Irrigation Engineering) Hydrology Hydrology Cycle types, intensity 1.3 Estimation of rainfall; rain gauge 1.4 Concept of catchment area 2. Water Requirement of Crops</p>	1.1 1.2 Rainfall: 1.3 Estimation of 1.4 Concept of 2. Water Requirement of Crops	5	3.4 3.5 3.6 3.7 3.8 3.9 3.10 3.11 3.12 3.13 3.14 3.15 3.16 3.17 3.18 3.19 3.20 3.21 3.22 3.23 3.24 3.25 3.26 3.27 3.28 3.29 3.30 3.31 3.32 3.33 3.34 3.35 3.36 3.37 3.38 3.39 3.40 3.41 3.42 3.43 3.44 3.45 3.46 3.47 3.48 3.49 3.50 3.51 3.52 3.53 3.54 3.55 3.56 3.57 3.58 3.59 3.60 3.61 3.62 3.63 3.64 3.65 3.66 3.67 3.68 3.69 3.70 3.71 3.72 3.73 3.74 3.75 3.76 3.77 3.78 3.79 3.80 3.81 3.82 3.83 3.84 3.85 3.86 3.87 3.88 3.89 3.90 3.91 3.92 3.93 3.94 3.95 3.96 3.97 3.98 3.99 4.00 4.01 4.02 4.03 4.04 4.05 4.06 4.07 4.08 4.09 4.10 4.11 4.12 4.13 4.14 4.15 4.16 4.17 4.18 4.19 4.20 4.21 4.22 4.23 4.24 4.25 4.26 4.27 4.28 4.29 4.30 4.31 4.32 4.33 4.34 4.35 4.36 4.37 4.38 4.39 4.40 4.41 4.42 4.43 4.44 4.45 4.46 4.47 4.48 4.49 4.50 4.51 4.52 4.53 4.54 4.55 4.56 4.57 4.58 4.59 4.60 4.61 4.62 4.63 4.64 4.65 4.66 4.67 4.68 4.69 4.70 4.71 4.72 4.73 4.74 4.75 4.76 4.77 4.78 4.79 4.80 4.81 4.82 4.83 4.84 4.85 4.86 4.87 4.88 4.89 4.90 4.91 4.92 4.93 4.94 4.95 4.96 4.97 4.98 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12	W-12	01.05.23 TO 06.05.23	6. CROSS DRAINAGE WORKS 6.1 Functions and necessity of Cross drainage works - aqueduct, siphon, super- passage, level crossing 6.2 Concept of each with help of neat sketch	7	5
13	W-13	08.05.23 TO 13.05.23	7. DAMS 7.1 Necessity of storage reservoirs, types of dams 7.2 Earthen dams: types, description, causes of failure and protection measures. 7.3 Gravity dams: types, description, Causes of failure and protection measures.	8	5
14	W-14	15.05.23 TO 20.05.23	7.4 Spillways- Types (With Sketch) and necessity.		3
15	W-15	22.05.23 TO 23.05.23	REVISION & DISCUSSION		

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Signature of Concerned Faculty
Department of Civil Engineering

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19/05/23

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Civil Engg. Dept.
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