GANESH INSTITUTEOFENGINEERINGAND TECHNOLOGY, POLYTECHNIC							
DEPARTMENTOFCIVIL ENGINEERING							
Name: ARASMITA DASH				LESSONPLAN CUM PROGRESS REPORT			
SUBJECT: Hydraulic and lirrigation Engineering				SEMESTER:4TH	BRANCH:CIVILENGINEERING		
LECTURE NO.	**CO**	**BTL**	**TOPIC TO BE COVERED**	**WEB REFERENCEIFANY**	**PLAN DATE**	**ACTION DATE**	**REVIEW BY HOD**
1	CO1	1	Pressure measurement and Hydrostatic pressure Technical terms used in Hydraulics –fluid, fluid mechanics, hydraulics, hydrostatics and hydrodynamics - ideal and real fluid, application of hydraulics.	https://youtu.be/dj_kZKGF-rw?si=u_9HFwTpjU6AT8cv	22.12.25		
2	CO1	1	Various types of pressure – Atmospheric Pressure, Gauge Pressure, Absolute Pressure, Vacuum Pressure. Concept of Pressure head and its unit, Pascal's law of fluid pressure and its uses. Measurement of differential Pressure by different methods. Variation of pressure with depth, Pressure diagram, hydrostatic pressure and center of pressure on immersed surfaces and on tank walls.	https://youtu.be/MJ_zjWyRHX8?si=WsNjsEjC1-wxBIXf	23.12.25		
3	CO1	1	Fluid Flow Parameters Types of flow – Gravity and pressure flow, Laminar, Turbulent, Uniform, Non-uniform, Steady, Unsteady flow. Reynolds number.	https://youtu.be/dirxdpSZZBM?si=Vf9HLT7KFA4jz8SW	24.12.25		
4	CO1	2	Discharge and its unit, continuity equation of flow. Energy of flowing liquid: potential, kinetic and pressure energy. Bernoulli's theorem : statement, assumptions, equation	https://youtu.be/DW4rltB20h4?si=bcS3_R40wKq2no9G	29.12.25		
5	CO1	2	Flow through pipes Major head loss in pipe: Frictional loss and its computation by Darcy's Weisbach equation	https://youtu.be/DW4rltB20h4?si=bcS3_R40wKq2no9G	30.12.25		
6	CO1	3	Major head loss in pipe: Frictional loss and its computation by Darcy's Weisbach equation	https://youtu.be/DW4rltB20h4?si=bcS3_R40wKq2no9G	31.12.25		
7	CO1	3	Minor losses in pipe: loss at entrance, exit, sudden contraction, sudden enlargement andfittings.	https://youtu.be/XCdnJjHdFBE?si=Ah-0DbTYCUAm3WkC	05.01.26		

8	**CO1**	**3**	Flow through pipes in series, pipes in parallel and Dupuit's equation for equivalent pipe. Flow through pipes in series, pipes in parallel and Dupuit's equation for equivalent pipe.	**https://youtu.be/XCdnJjHdFBE?si=Ah-0DbTYCUAm3WkC**	06.01.26		
9	**CO1**	**2**	Hydraulic gradient line and total energy line.	**https://youtu.be/LoGZOmZCqCM?si=C_5fpnKNFhokxFqN**	07.01.26		
10	**CO1**	**2**	Discharge measuring device for pipe flow: Venturi meter - construction and working.	**https://youtu.be/LoGZOmZCqCM?si=C_5fpnKNFhokxFqN**	12.01.26		
11	**CO1**	**1**	Discharge measurement-using Orifice, Hydraulic Coefficients of Orifice.	**https://youtu.be/LoGZOmZCqCM?si=C_5fpnKNFhokxFqN**	13.01.26		
12	**CO1**	**1**	**Flow through Open Channel** Geometrical properties of channel section: Wetted area, wetted perimeter	**https://youtu.be/1zAz1DYDUyc?si=uYDCF6o0VhMJZ78i**	19.01.26		
13	**CO1**	**1**	hydraulic radius for rectangular and trapezoidal channel section.	**https://youtu.be/1zAz1DYDUyc?si=uYDCF6o0VhMJZ78i**	20.01.26		
14	**CO1**	**2**	Determination of discharge by Chezy's equation and Manning's equation.	**https://youtu.be/1zAz1DYDUyc?si=uYDCF6o0VhMJZ78i**	21.01.26		
15	**CO1**	**1**	Conditions for most economical rectangular and trapezoidal channel section.	**https://youtu.be/1zAz1DYDUyc?si=uYDCF6o0VhMJZ78i**	27.01.26		
16	**CO1**	**2**	Discharge measuring devices: Triangular and rectangular Notches.	**https://youtu.be/1zAz1DYDUyc?si=uYDCF6o0VhMJZ78i**	28.01.26		
17	**CO1**	**1**	Velocity measurement devices: current meter, floats and Pitot's tube.	**https://youtu.be/5QiHj5HhXxA?si=3VGjEpULDl3eJCM1**	02.02.26		
18	**CO1**	**2**	Specific energy diagram, Froudes' Number	**https://youtu.be/5QiHj5HhXxA?si=3VGjEpULDl3eJCM1**	03.02.26		
19	**CO1**	**1**	**Hydraulic Pumps** Concept of pump, Types of pump - centrifugal, reciprocating, submersible.	**https://youtu.be/C4dyC_36ozE?si=rxKrC_0lUa6syRg_**	04.02.26		
20	**CO2**	**3**	Centrifugal pump: components and working Reciprocating pump: single acting and double acting, components and working.	https://youtu.be/C4dyC_36ozE?si=rxKrC_0lUa6syRg_	09.02.26		
21	**CO2**	**1**	Suction head, delivery head, static head, Manometric head	**https://youtu.be/C4dyC_36ozE?si=rxKrC_0lUa6syRg_**	10.02.26		
22	**CO2**	**2**	Power of centrifugal pump.	**https://youtu.be/C4dyC_36ozE?si=rxKrC_0lUa6syRg_**	11.02.26		

23	CO2	1	Selection and choice of pump.	https://youtu.be/C4dyC_36ozE?si=rxKrC_0lUa6syRg_	16.02.26		
24	CO2	2	**Introduction to Hydrology** Hydrology: Definition and Hydrological cycle Rain Gauge: Symons rain gauge, automatic rain gauge	https://youtu.be/HAZ0PtdcVhM?si=l8Ff7O8tK3wdbfn7	17.02.26		
25	CO2	1	Methods of calculating average rainfall: Arithmetic mean, Isohyetal, and Theissen polygon method.	https://youtu.be/HAZ0PtdcVhM?si=l8Ff7O8tK3wdbfn7	18.02.26		
26	CO2	2	Runoff, Factors affecting Run off, Computation of run–off.	https://youtu.be/HAZ0PtdcVhM?si=l8Ff7O8tK3wdbfn7	23.02.26		
27	CO2	1	Maximum Flood Discharge measurement: Rational and empirical methods, Simple numerical problems.	https://youtu.be/WAGe8-HCFMU?si=NI0TSkKN-PRTPfBx	24.02.26		
28	CO2	2	Yield and Dependable yield of a catchment, determination of dependable yield.	https://youtu.be/WAGe8-HCFMU?si=NI0TSkKN-PRTPfBx	25.02.26		
29	CO2	2	**Crop water requirement and Reservoir Planning** Irrigation and its classification.	https://youtu.be/WAGe8-HCFMU?si=NI0TSkKN-PRTPfBx	02.03.26		
30	CO2	1	Crop Water requirement: Cropping seasons, Crop period, base period, Duty, Delta, CCA, GCA, intensity of irrigation, factors affecting duty, Problems on water requirement and capacity of canal.	https://youtu.be/YkKOwELtEcg?si=L110i8xnNzCyN8lB	09.03.26		
31	CO2	3	Methods of application of irrigation water and its assessment. Area capacity curve.	https://youtu.be/YkKOwELtEcg?si=L110i8xnNzCyN8lB	10.03.26		
32	CO3	2	Silting of reservoir, Rate of silting, factors affecting silting and control measures.	https://youtu.be/YkKOwELtEcg?si=L110i8xnNzCyN8lB	11.03.26		
33	CO3	3	Control levels in reservoir, Simple numerical problems on Fixing Control levels.	https://youtu.be/YkKOwELtEcg?si=L110i8xnNzCyN8lB	16.03.26		
34	CO3	3	**Dams and Spillways** Dams and its classification: Earthen dams and Gravity dams (masonry and concrete).	https://youtu.be/m0D9kcFa1Y8?si=vNP1ByKvWECz0Lf0	17.03.26		
35	CO3	3	Earthen Dams – Components with function, typical cross section, seepage through embankment and foundation and its control.	https://youtu.be/m0D9kcFa1Y8?si=vNP1ByKvWECz0Lf0	18.03.26		

36	**CO3**	**3**	Methods of construction of earthen dam, types of failure of earthen dam and preventive measures.	**https://youtu.be/m0D9kcFa1Y8?si=vNP1ByKvWECz0Lf0**	23.03.26		
37	**CO3**	**1**	Gravity Dams – Forces acting on dam, Theoretical and practical profile, typical cross section, drainage gallery, joints in gravity dam, concept of high dam and low dam.	**https://youtu.be/m0D9kcFa1Y8?si=vNP1ByKvWECz0Lf0**	24.03.26		
38	**CO3**	**2**	Spillways-Definition, function, location, types and components, Energy dissipaters.	**https://youtu.be/m0D9kcFa1Y8?si=vNP1ByKvWECz0Lf0**	25.03.26		
39	**CO3**	**3**	**Diversion Head Works & Canals** Weirs – components, parts, types, K.T. weir – components and construction	**https://youtu.be/m0D9kcFa1Y8?si=vNP1ByKvWECz0Lf0**	30.03.26		
40	**CO3**	**3**	Diversion head works – Layout, components and their function.	**https://youtu.be/m0D9kcFa1Y8?si=vNP1ByKvWECz0Lf0**	06.04.26		
41	**CO4**	**1**	Barrages – components and their functions. Difference between weir and Barrage.	**https://youtu.be/m0D9kcFa1Y8?si=vNP1ByKvWECz0Lf0**	06.04.26		
42	**CO4**	**1**	Canals – Classification according to alignment and position in the canal network, Cross section of canal in embankment and cutting,	**https://youtu.be/m0D9kcFa1Y8?si=vNP1ByKvWECz0Lf0**	07.04.26		
43	**CO4**	**1**	partial embankment and cutting, balancing depth, Canal lining - Purpose, material used and its properties, advantages.	**https://youtu.be/m0D9kcFa1Y8?si=vNP1ByKvWECz0Lf0**	08.04.26		
44	**CO4**	**2**	Cross Drainage works- Aqueduct, siphon aqueduct, super passage, level crossing.	**https://youtu.be/m0D9kcFa1Y8?si=vNP1ByKvWECz0Lf0**	08.04.26		
45	**CO4**	**1**	Canal regulators- Head regulator, Cross regulator, Escape, Falls and Outlets	**https://youtu.be/m0D9kcFa1Y8?si=vNP1ByKvWECz0Lf0**	09.04.26		

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