

Lesson Planning (Theory)

Branch : Civil Engineering

Semester : 5th

Subject : Water Resource Engineering

Session : August-December 2026

Teacher: Er. Rana Kunal

Class Room : A-201

S.No.	No. of WEEKS	Chapter/ Unit Description	Detail of Contents	Reference Resources	Remarks
1	3 WEEKS	Unit-I Introduction to Hydrology	- Hydrology: Definition and Hydrological cycle - Rain Gauge: Symons rain gauge, automatic rain gauge, - Methods of calculating average rainfall: Arithmetic mean, Iso-hyetal, and Thiessen polygon method. - Runoff, Factors affecting Runoff, Computation of run-off.	R1,R2	
2	3 WEEKS	Unit-II Crop water requirement and Reservoir Planning	- Irrigation and its classification. - Crop Water requirement: Cropping seasons, Crop period, base period, Duty, Delta, CCA, GCA, intensity of irrigation, factors affecting duty, Problems on water requirement - Methods of application of irrigation water and its assessment. - Silting of reservoir, Rate of silting, factors affecting silting and control measures.	R1,R2	
3	3 WEEKS	Unit-III Dams and Spillways	- Dams and its classification: Earthen dams and Gravity dams (masonry and concrete). - Earthen Dams- Components with function, typical cross-section, seepage through embankment and foundation and its control. - Methods of construction of earthen dam, types of failure of earthen dam and preventive measures. - Gravity Dams-Forces acting on dam, Theoretical and practical profile, typical cross-section. (only theoretical concept) - Spillways-Definition, function & location	R1,R2	
4	3 WEEKS	Unit-IV Minor and Micro Irrigation Unit-V Diversion Head Works & Canals	- Lift irrigation Scheme-Components and their functions, Layout. - Drip and Sprinkler Irrigation-Need, components, and Layout. - Well irrigation: types and yield of wells, advantages and disadvantages of well irrigation. - Weirs-components, parts, types of weirs - Barrages-components and their functions. Difference between weir and Barrage. Canals- Classification according to alignment and position in the canal network, Cross section of canal in embankment and cutting, partial embankment and cutting. - Canal lining- Purpose, material used and its properties, advantages.	R1,R2	

5	2 WEEKS	Unit–V Diversion Head Works &Canals Unit–VI Water logging	• Cross Drainage Works-Aqueduct, siphon aqueduct, super passage, level crossing. • Canal Regulators- Head regulator, Cross regulator, Escape, Falls and Outlets • Definition, Causes, Preventive & remedial measures, Reclamation of water- logged areas	R1,R2	
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REFERENCE RESOURCES

- Punmia, B.C., Pande, B.Lal, Irrigation and Water Power Engineering, Laxmi Publications
- Garg, SK, Irrigation and Hydraulic Structures, Khanna Publishers, Delhi.

Signature of Teacher

Signature of H.O.D/OIC