SWARNANDHRA
COLLEGE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)
Accredited by National Board of Accreditation, AICTE, New Delhi,Accredited by NAAC with "A" Grade – 3.32 CGPA,Recognized under 2(f) & 12(B) of UGC Act 1956
Approved by AICTE, New Delhi,Permanent Affiliation to JNTUK, Kakinada
Seetharampuram, W.G.DT., Narsapur-534280, (Andhra Pradesh)

DEPARTMENT OF CIVIL ENGINEERING

TEACHING PLAN

Course Code	Course Title	Semester	Branch	Contact Periods /Week	Academic Year	Date of commencement of Semester
23CE5T02	ENGINEERING HYDROLOGY	V	CIVIL	05	2025-26	09-07-2025

COURSE OUTCOMES	
1	Understand the theories and principles governing the hydrologic processes.(K2)
2	Measure evaporation, evapo-transpiration and Infiltration in hydrologic process. (K2)
3	Derive unit hydrograph and synthetic hydrograph.(K3)
4	Estimate flood magnitude and carry out flood routing.(K3)
5	Determine aquifer parameters and yield of wells.(K3)

UNIT	Out Comes / Bloom's Level	Topics No.	Topics/Activity	Text Book / Reference	Contact Hour	Delivery Method
I	CO1 K2	1.1	Introduction to engineering hydrology	T2,R1	1	Chalk & Talk, PPT, Tutorial
		1.2	Applications of engineering hydrology	T2,R1	1	
		1.3	Hydrologic cycle	T2,R1	1	
		1.4	Hydrologic data sources in India	T2,R1	1	
		1.5	Precipitation and forms of precipitation	T2,R1	1	
		1.6	Measurement of rainfall and introduction to radar rainfall measurement	T1,T2, R1	1	
		1.7	Measurement of rainfall and rain gauge network	T1,T2, R1	1	
		1.8	Presentation of rainfall data, average rainfall, continuity and consistency of rainfall data	T1,T2, R1	1	

		1.9	Frequency of rainfall, Intensity Duration Frequency (IDF) curves	T1,T2, R1	1	
		1.10	Depth Area Duration (DAD) curves	T1,T2, R1	1	
		1.11	Probable Maximum Precipitation (PMP), Design storm	T1,T2, R1	1	
		1.12	Class test-1		1	
						12
II	CO2 K2	2.1	Introduction to Abstractions – various types of abstractions	T1,R1	1	Chalk & Talk, PPT, Tutorial
		2.2	Interceptional losses, transpiration	T1,R1	1	
		2.3	Evaporation: Factors, estimation, measurement, reduction	T1,R1	1	
		2.4	Evaporation: Factors, estimation, measurement, reduction	T1,R1	1	
		2.5	Evapotranspiration: factors, estimation, measurement, control	T1,R1	1	
		2.6	Evapotranspiration: factors, estimation, measurement, control	T1,R1	1	
		2.7	Infiltration: Factors, Estimation, measurement,	T1,R1	1	
		2.8	Infiltration: Factors, Estimation, measurement,	T1,R1	1	
		2.9	Infiltration capacity curves	T1,R1	1	
		2.10	Infiltration indices	T1,R1	1	
		2.11	Problems on infiltration indices	T1,R1	1	
		2.12	Class test-2	T1,R1	1	
						12
III	CO3: K2	3.1	Runoff and factors affecting runoff	T1,R1	1	Chalk & Talk, PPT, Tutorial
		3.2	Methods to estimate runoff	T1,R1	1	
		3.3	Components of storm hydrograph, Direct runoff hydrograph, construction of	T1,R1	1	

			DRH			
		3.4	Problem on DRH	T1,R1	1	
		3.5	Unit hydrograph and construction of unit hydrograph	T1,R1	1	
		3.6	Summation curve method, Equilibrium discharge equation	T1,R1	1	
		3.7	Problems on s-curve method	T1,R1	1	
		3.8	Problems on s-curve method	T1,R1	1	
		3.9	Problems on s-curve method	T1,R1	1	
		3.10	Instantaneous unit hydrograph	T1,R1	1	
		3.11	Synthetic unit hydrograph	T1,R1	1	
		3.12	Limitations of unit hydrograph	T1,R1	1	
		3.13	Class test-3			
				Total		13
IV	CO4: K2	4.1	Floods causes and effects	T1,R1	1	Chalk & Talk, PPT, Tutorial
		4.2	Frequency analysis- Gumbel and log	T1,R1	1	
		4.3	Standard project flood and probable maximum flood	T1,R1	1	
		4.4	Flood control methods and management	T1,R1	1	
		4.5	Hydrological routing	T1,R1	1	
		4.6	Channel and reservoir routing	T1,R1	1	
		4.7	Channel and reservoir routing-Muskingum and puls method of routing	T1,R1	1	
		4.8	Class test-4	T1,R1	1	
						8
V	CO5: K2	5.1	Introduction to ground water and various sources of water	T1, R2	1	Chalk & Talk, PPT, Tutorial
		5.2	Types of aquifers, aquifer parameters	T1, R2	1	
		5.3	Porosity, specific yield, specific retention,	T1, R2	1	
		5.4	Transmissivity and storage coefficient, type of wells	T1, R2	1	
		5.5	Darcys law,	T1,R2	1	
		5.6	Dupit's equation	T1,R2	1	
		5.7	Steady radial flow to wells	T1,R2	1	
		5.8	Class test-5	T1,R2	1	
				Total	8	
				CUMULATIVE PROPOSED PERIODS	53	
Text Books:						

S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION
1	Subramanya. K, "Engineering Hydrology", Tata McGraw Hill, New Delhi, 2014.
2	Jayarami Reddy. P, "Hydrology", Tata McGraw Hill, New Delhi, 2016
Reference Books:	
S.No.	**AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION**
1	Ragunath.H, "Hydrology", Wiley Eastern Limited, New Delhi, 2015.
2	B.C Punmia & Lal, Irrigation and water power engineering, Laxmi publications pvt. Ltd., New Delhi, 2018
Web Details	
1	https://nptel.ac.in/courses/105104103

		Name	Signature with Date
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Principal