भारतीय प्रौद्योगिकी संस्थान तिरुपति
TIRUPATI

INDIAN INSTITUTE OF TECHNOLOGY TIRUPATI
भारतीय प्रौद्योगिकी संस्थान तिरुपति
Yerpedu-Venkatagiri Road, Yerpedu Post, Tirupati District, Andhra Pradesh - 517 619

1.	Title of the course	Water Resources Engineering
2.	Course number	CE314L
3.	Structure of credits (L-T-P-C)	3-0-0-3
4.	New course/modification to	Modified with CE302L/WATER RESOURCES ENGINEERING
5.	To be offered by	Civil and Environmental Engineering
6.	Proposed by	S Prasanna Venkatesh
7.	Prerequisite	None
8.	**Course Objective(s):** To introduce various processes that govern the distribution and circulation of water resources in natural and man made systems such as precipitation, evaporation, streamflow, runoff, infiltration and groundwater flow.	
9.	**Course Content:** Introduction to hydrological processes: hydrologic cycle; Precipitation: forms, classification, variability, measurement, data analysis; Abstractions from precipitation: evapotranspiration, interception, depression storage, infiltration processes and its estimation; Runoff: drainage basin characteristics, hydrograph analysis, concepts, assumptions and limitations of unit hydrographs, flow duration curves, rainfall-runoff modelling; Groundwater: occurrence, governing equations, well hydraulics, salt water intrusion; Streamflow measurement; Hydrologic analysis: design flood estimation, frequency analysis, flood routing, storm drainage network design.	
10.	**Textbook(s):** 1. Chow V T, Maidment D R and Mays L W, Applied Hydrology, 2nd Edition, McGraw Hill (2016). 2. Subramanya K, Engineering Hydrology, 5th Edition, McGraw Hill (2020).	
11.	**Reference(s):** 1. Wurbs R A and James W P, Water Resources Engineering, Pearson (2015).	