INDIAN INSTITUTE OF TECHNOLOGY TIRUPATI
PROFORMA FOR NEW COURSE

1.	Title of the Course	Surface Water Hydrology
2.	Course Number	CE5107
3.	Status of the Course	Core
4.	Structure of Credits	3-0-0-3
5.	Offered To	PG
6.	New Course/Modification to	New
7.	To be Offered by	Department of Civil Engineering
8.	To take effect from	July 2019
9.	Prerequisite	Nil
10.	Whether approved by the Department	Yes
11.	**Course Objective:** This course will introduce the hydrological processes including evaporation, transpiration, precipitation, infiltration, ground-water flow and surface runoff. This course will describe the role of modelling the physical processes using the quantitative measurements and estimates of the various components of the hydrologic cycle.	
12.	**Course Content:** Hydrologic cycle, space and time scales, classification of hydrologic models; Precipitation: mechanisms, types, use of Intensity-Duration-Frequency curves, design storm, probable maximum precipitation; Infiltration: process description, measurement, Richard's equation, Green Ampt model; Evaporation: process description, modified Penman equation; Evapotranspiration: process description, measurement, irrigation scheduling; Overland flow: Hortonian and Saturation overland flow mechanisms; Streamflow: factors affecting base flow, Hydrograph analysis, unit hydrograph theory; Design flood estimation and regional flood frequency analysis; Flood Routing: reservoir routing, channel routing Muskingum Cunge method, Diffusion wave routing; Hydrologic Design: uncertainty concepts, first order reliability method.	
13.	Text book(s): 1. Chow V T, Maidment D R and Mays L W, *Applied hydrology,* McGraw Hill (1988). 2. McCuen R H, , *Hydrologic Analysis and Design,* Pearson (2012).	
14.	Reference(s): 1. Singh V P, *Elementary Hydrology,* Pearson (1992).	