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| 1.  | Title of the course   | Surface Water Hydrology                           |
| 2.  | Course number   | CE532L  |
| 3.  | Structure of credits  | 3-0-0-3   |
| 4.  | Offered to  | PG  |
| 5.  | New course/modification to  | Modification To CE5107/8                          |
| 6.  | To be offered by  | Department of Civil and Environmental Engineering |
| 7.  | To take effect from   | July 2022   |
| 8.  | Prerequisite  | Nil   |
| 9.  | <b>Course Objective(s):</b> 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.  |   |
| 10. | <b>Course Content:</b> 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. |   |
| 11. | <b>Textbook(s):</b><br>1. Chow V T, Maidment D R and Mays L W, <i>Applied hydrology</i> , McGraw Hill (1988).<br>2. McCuen R H, <i>Hydrologic Analysis and Design</i> , Pearson (2012).   |   |
| 12. | <b>Reference(s):</b><br>1. Singh V P, <i>Elementary Hydrology</i> , Pearson (1992).   |   |