CE619A: Ecohydrology **3-0-0-0 [9]**

Course Contents:

Introduction: Origin and scope of ecohydrology. Ecohydrological processes: Interactions between physical, chemical and biological processes at basin scale soil water dynamics, land surface energy budgets; scales of interactions; ecohydrological optimality theory; ecohydrological controls on nutrient cycle; Landscape connectivity morphological, ecological and hydrological connections. Techniques in ecohydrological measurements: Measuring energy and water fluxes in atmosphere, soil and vegetation; atmosphere latent, sensible and CO_2 fluxes, distribution of wind, temperature and humidity; soil moisture, soil respiration and soil heat flux; vegetation leaf area index, stomatal conductance and transpiration. Ecohydrological modeling: Governing equations; mathematical models stochastic and deterministic models; process based and empirical models; calibration and validation of models; scale issues in ecohydrological modeling. Applications of ecohydrology: Use of ecohydrogical principles in paleo-hydrology and climate change studies; ecohydrological approach for sustainable management of floods and droughts; case studies from tropical river basins and dry land ecosystems.