# RURAL WATER RESOURCES MANAGEMENT

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**TYPE OF COURSE** : New | Elective | UG
**COURSE DURATION** : 12 Weeks (24 Jan' 22 - 15 Apr' 22)
**EXAM DATE** : April 23, 2022

**INTENDED AUDIENCE :** Students in Civil Engineering, Rural Development, Earth Science, Geology and Rural development departments

**INDUSTRIES APPLICABLE TO :** All water government agencies and private industries, Larsen and Turbo, IT industries that are working on water (e.g. Tata Consultancy, Microsoft, IBM), Jal Sakthi Mission, etc.

**COURSE OUTLINE :**

Water is the most important resource in India, given India is still an agrarian nation and most industries need water. India is the highest extractor of groundwater in the world and it is necessary to understand water resource issues and concerns so that water resources management activities can be scientifically formulated and validated. A focused course on water management is necessary to sensitize the students on the actual issues and how to manage, adapt and mitigate. In addition, good water management is key for attaining sustainable development goals, protecting a country against climate change extremes and for promoting industrial growth in India.

**ABOUT INSTRUCTOR :**

Prof. Pennan Chinnasamy obtained his Masters degree in Physics from Wesleyan University, Connecticut -US, followed by a doctoral degree, with focus on hydrology, from University of Missouri, US. After his Research fellow position with Ashoka Trust for Research in Ecology and the Environment (ATREE), he joined the International Water Management Institute (IWMI) as a Researcher (Geohydrology and Remote Sensing), and was stationed in Nepal and Indian offices, where he focused on climate change impacts on under developed and developing nations. He then joined Nanyang Technological University, Singapore, as a Senior Researcher developing real time flood predicting models for Singapore.

**COURSE PLAN :**

**Week** 1**:** Importance of water resource management in India and Introduction to Hydrological Cycle and representations

**Week** 2**:** Key Hydrological Parameters 1

**Week** 3**:** Key Hydrological Parameters 2

**Week** 4**:** Introduction to Groundwater hydrology

**Week** 5**:** Groundwater components

**Week** 6**:** Surface water hydrology

**Week** 7**:** Water Mass Balance Equation

**Week** 8**:** Rural water management issues, data challenges and observation records.

**Week** 9**:** Rural water resource management infrastructure (engineered)

**Week** 10**:** Rural water resource management infrastructure (nature based)

**Week** 11**:** Solving case studies in rural water resource management

**Week** 12**:** Rural hydrological databases for India.