WASTEWATER TREATMENT AND RECYCLING

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TYPE OF COURSE : Rerun | Elective | UG/PG
COURSE DURATION : 12 weeks (26 Jul’21 - 15 Oct’21)
EXAM DATE : 23 Oct 2021

INTENDED AUDIENCE : B.E/B.Tech, M.E/M.Tech, M.S, B.Sc, M.Sc, Ph.D.
PRE-REQUISITES : Environmental Sciences, Introduction to Environmental Engineering
INDUSTRIES APPLICABLE TO : Larsen and Tourbo, Tata Group of Industries, Ramky Group of Industries, IF&LS Environment

COURSE OUTLINE:
Freshwater is fundamental to life, livelihood, and sustainable development. The issues related to the management of freshwater, are highly sensitive due to conflicts between financial, environmental, social and political viewpoints, and often needs multi-level governance involving various stakeholders. This course aims to discuss the integrities of economics principles and governance for sustainable water management. The course will largely cover topics including the basics concept of sustainable water uses, water rights, valuing and pricing water with various pricing models, methods of economic evaluation of water projects, water governance in India including water policies and water acts, water disputes management, and global water diplomacy. The purpose of this course is to instil in students the comprehensive knowledge and understanding on the governance of water in India and economics involved in water management.

ABOUT INSTRUCTOR:
Dr. Manoj Kumar Tiwari [Ph.D. (IIT Kanpur)] is a Civil Engg. graduate with specialization in Environmental Engg. and holds expertise in water and wastewater treatment, water distribution systems, water pricing, and contaminant fate and transport. He is a recipient of prestigious Fulbright Fellowship. Dr. Tiwari has co-authored several papers in apex international journals, and has presented his research in various top ranked conferences across the globe. Dr. Tiwari has over 8 years of teaching experience with both UG as well as PG level course. He has designed several new courses at IIT Kharagpur for Master’s programme in Water Engineering and Management.

COURSE PLAN:

Week 01 : Introduction: General outline; Introduction to wastewater
Week 02 : Wastewater Generation and Characteristics
Week 03 : Natural Attenuation of Pollutants in Wastewater
Week 04 : Treatment Philosophy; Objectives of wastewater treatment
Week 05 : Preliminary and Primary Treatment Processes
Week 06 : Secondary Treatment Processes
Week 07 : Secondary Treatment Processes-Anaerobic
Week 08 : Sludge Management
Week 09 : Tertiary (Advanced) Treatment Processes
Week 10 : Current Treatment Approaches
Week 11 : Wastewater Recycling: Scope and demands
Week 12 : Technology Selection and Decision Making