



WATER AND WASTE WATER TREATMENT

PROF. BHANU PRAKASH V

Department of Civil Engineering

IIT Roorkee

INTENDED AUDIENCE : Civil Engineering and Environmental Engineering/science students

COURSE OUTLINE :

Waste water part of syllabus is covered from the headworks till the final Disinfection and Disinfectant removal, their design is also considered in detail. Water treatment portion covers the nitty gritty of treatment and the relevant aspects post treatment like residual removal. This course will allow the student to clear basics and concepts for further in depth learning.

ABOUT INSTRUCTOR :

Prof. Bhanu Prakash Vellanki, is an Assistant Professor at IIT Roorkee. He holds a PhD in Civil Engineering with a specialization in Environmental Engineering from Texas A&M University. During the course of his doctoral work, Dr. Vellanki developed a new class of treatment processes, called the Advanced Reduction Processes. His research interests include Advanced Redox Processes, industrial/hazardous waste treatment, and emerging contaminants.

COURSE PLAN :

Week 1: Introduction; Overview of water and waste water systems - Urban water system, Treatment plans, Design process ; Review of fundamentals

Week 2: Review of fundamentals (Cont'd); Waste water treatment - General conditions, Head works

Week 3: Waste water treatment - Primary sedimentation, Biological treatment

Week 4: Waste water treatment - Biological treatment (Cont'd)

Week 5: Waste water treatment - Disinfection / Disinfectant removal, Other treatment process

Week 6: Waste water treatment - General considerations, Coagulation and flocculation

Week 7: Water treatment - Sedimentation, Filtration

Week 8: Water treatment - Filtration, Disinfection and disinfection by products

Week 9: Water treatment - Lime softening, Ion exchange softening

Week 10: Water treatment - Nano filtration softening, Desalination; Residual management - Overview

Week 11: Residual management - Concentration, Stabilization

Week 12: Residual management - Conditioning, Dewatering