

# Water and Waste Water Engineering - Video course

## **Water and Wastewater Quantity Estimation**

Population forecast; Water demand for various purposes; Estimation of wastewater quantity; Variation in quantity of water and wastewater  
(2 Lectures)

## **Water Supply/Distribution Systems**

(2 Lectures)

## **Wastewater Collection Systems**

(2 Lectures)

## **Water/Wastewater Quality Enhancement**

Philosophy of treatment; Unit operations and processes; Physical, chemical and biological methods  
(1 Lecture)

## **Domestic Wastewater Treatment**

Wastewater characteristics; Primary, secondary and tertiary treatment;  
(1 Lecture)

## **Physical Unit Processes**

Screening; Commutation; Grit Removal; Equilization; Sedimentation;  
(3 Lectures)

## **Introduction to Microbiology**

Microbial ecology and Growth kinetics; Types of microorganisms; aerobic vs. anaerobic processes  
(2 Lectures)

## **Biological Unit Processes**

Aerobic treatment; Suspended growth aerobic treatment processes; Activated sludge process and its modifications; Attached growth aerobic processes; Tricking filters and Rotating biological contactors; Anaerobic treatment; suspended growth, attached growth, fluidized bed and sludge blanket systems; nitrification, denitrification; Phosphorus removal  
(10 Lectures)

## **Sludge Treatment**

Thickening; Digestion; Dewatering; Sludge drying; Composting  
(2 Lectures)

## **Wastewater Treatment Plant Characteristics**

Sequencing of unit operations and processes; Plant layout; Hydraulic considerations.

(2 Lectures)

## **Natural Wastewater Treatment Systems**

Ponds and Lagoons; Wetlands and Root-zone systems.

(2 Lectures)

## **Surface and Ground Water Treatment for Potable Water Supply**

Water Characteristics; Sequencing of unit operations and processes;  
(1 Lecture)

## **Chemical Unit Processes**

Coagulation-

Flocculation; Filtration; Disinfections; Aeration and Gas transfer; Precipitation; Softening; Adsorption and Ion exchange; Membrane processes

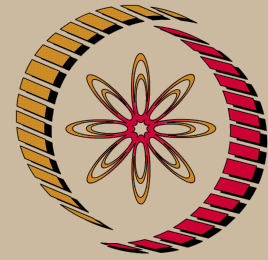
(9 Lectures)

## **Water Treatment Plant Characteristics**

Plant layout; Hydraulic considerations

(1 Lecture)

## **Rural Water Supply;**



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## Civil Engineering

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(1 Lecture)

**Low Cost Sanitation;**

Septic tanks, Soak-pits.

(1 Lecture)

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