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;
(1 Lecture)

**Low Cost Sanitation;**
Septic tanks, Soak-pits.
(1 Lecture)

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