

NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Water and Waste Water Treatment

Subject Co-ordinator - Prof. Bhanu Prakash Vellanki

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Importance of water and wastewater treatment
Lecture 2 - Life expectancy and real-world scenario
Lecture 3 - Course outline
Lecture 4 - Review of fundamentals
Lecture 5 - Mass balance
Lecture 6 - Mass Balance: Batch reactor, CSTR, and Plug flow reactors
Lecture 7 - Mass balance: Comparison of CSTR and Plug flow reactor
Lecture 8 - Mass Balance: Non ideal system and Water quality parameters
Lecture 9 - Water quality: DO and ways to measure it
Lecture 10 - Water quality: Nutrients in water
Lecture 11 - Water quality: Total suspended solids and Pathogens
Lecture 12 - Wastewater treatment plant: basic principals
Lecture 13 - Wastewater treatment plant: Preliminary treatment
Lecture 14 - Wastewater treatment plant: Sedimentation and basics
Lecture 15 - Sedimentation: Discrete and Flocculant settling
Lecture 16 - Design of primary settling tank
Lecture 17 - Biological treatment: BOD and Nutrient removal
Lecture 18 - Analysis of biological removal process(ASP)
Lecture 19 - Activated sludge process: Material balance for aeration basin
Lecture 20 - Oxygen transfer: types and basic principals
Lecture 21 - Relevance of F/M ratio and Design Parameters of Activated Sludge Process
Lecture 22 - Sludge Bulking and Activated Sludge Variations
Lecture 23 - Sequencing Batch Reactor
Lecture 24 - Nitrogen Removal - I
Lecture 25 - Nitrogen Removal - II and Phosphorus Removal - I
Lecture 26 - Phosphorus Removal - II
Lecture 27 - Secondary Clarifiers and Attached Growth System
Lecture 28 - Disinfection
Lecture 29 - Chlorination Disinfection

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- Lecture 30 - Disinfection By-products (DBPs) and Disinfectant Removal
- Lecture 31 - Water demand
- Lecture 32 - Water Quality Parameters
- Lecture 33 - Overview of Water Treatment
- Lecture 34 - Physico-Chemical treatment
- Lecture 35 - Coagulation - I
- Lecture 36 - Coagulation - II
- Lecture 37 - Rapid Mixing
- Lecture 38 - Flocculation - I
- Lecture 39 - Flocculation - II
- Lecture 40 - Flocculent settling
- Lecture 41 - Filtration
- Lecture 42 - Depth filtration
- Lecture 43 - Design of Sand filter and Surface filtration
- Lecture 44 - Disinfection
- Lecture 45 - Hardness - I
- Lecture 46 - Hardness - II
- Lecture 47 - Lime-Soda softening - I
- Lecture 48 - Lime-Soda softening - II
- Lecture 49 - Recarbonation
- Lecture 50 - Types of Softening Basin and Adsorption
- Lecture 51 - Adsorption
- Lecture 52 - Adsorption Isotherms
- Lecture 53 - Ion Exchange
- Lecture 54 - Nanofiltration and RO
- Lecture 55 - Aeration: Removal of Fe and Mn
- Lecture 56 - Residual Management
- Lecture 57 - Sludge Thickening
- Lecture 58 - Stabilization of Sludge
- Lecture 59 - Anaerobic and Aerobic digestion of sludge
- Lecture 60 - Conditioning, Dewatering and Disposal of Sludge