NPTEL Video Course - Biotechnology - NOC:Transport Phenomena in Biological Systems

Subject Co-ordinator - Prof. G.K. Suraishkumar

Co-ordinating Institute - IIT - Madras

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

Lecture 30 - Capillary Flow
Lecture 31 - Couette Flow
Lecture 32 - Non-dimensional Analysis
Lecture 33 - Unsteady State Flow
Lecture 34 - Unsteady State Flow (Continued...)
Lecture 35 - Pulsatile Flow
Lecture 36 - Turbulent Flow
Lecture 37 - Macroscopic Aspects
Lecture 38 - Friction Factor for Flow through a Straight Horizontal Pipe
Lecture 39 - Application of the Engineering Bernoulli Equation to a Piping Network
Lecture 40 - Stenosis in an Artery
Lecture 41 - Friction Factor for Relative Motion between a Solid and a Liquid
Lecture 42 - Friction Factor for Packed Beds
Lecture 43 - Review of Momentum Flux
Lecture 44 - Review of Momentum Flux (Continued...)
Lecture 45 - Thermal Energy Flux
Lecture 46 - Equation of Energy
Lecture 47 - Temperature Profile in a Tissue
Lecture 48 - Unsteady-state Heat Conduction
Lecture 49 - Review of Heat Flux
Lecture 50 - Charge Flux
Lecture 51 - Charge Flux - Some Fundamentals
Lecture 52 - Charge Flux - Some More Fundamentals
Lecture 53 - Getting Useful Relationships through Maxwell's Equations
Lecture 54 - Charges/Ions in Solution
Lecture 55 - Charge Flux
Lecture 56 - Fluxes Under Simultaneous, Multiple Driving Forces
Lecture 57 - Simultaneous Concentration Gradient and Electrical Potential Gradient
Lecture 58 - Mobility of Ions Across a Membrane
Lecture 59 - Electrical Circuit Representation of a Membrane
Lecture 60 - Action Potential and Axial Current
Lecture 61 - Electrophoresis
Lecture 62 - Simultaneous Concentration Gradient and Velocity Gradient
Lecture 63 - Simultaneous Concentration Gradient and Velocity Gradient - Bioreactor Kla
Lecture 64 - Gas-Liquid Interphase Transport
Lecture 65 - Gas-Liquid Interphase Transport (Continued...)
Lecture 66 - Bioreactor Kla Estimation
Lecture 67 - Liquid Phase Oxygen-Supply Strategy
Lecture 68 - LPOS and Its Mechanism

Lecture 69 - LPOS for Mold Cultivations
Lecture 70 - LPOS Optimization and Costs
Lecture 71 - Couette Flow Cultivations
Lecture 72 - Pseudo-Steady State Approximation Applied to Bio-oil Production
Lecture 73 - Pseudo-Steady State Approximation Applied to Cancer Treatment
Lecture 74 - Kinetics of a Process with an Enzyme Immobilized on a Non-porous Slab
Lecture 75 - Simultaneous Temperature Gradient and Velocity Gradient
Lecture 76 - Design of Heat Exchangers
Lecture 77 - Design of Heat Exchangers (Continued...)
Lecture 78 - Course Review - Part 1
Lecture 79 - Course Review - Part 2
Lecture 80 - Course Review - Part 3
Lecture 81 - Course Review - Part 4