

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

NPTEL Video Course - Chemical Engineering - Interfacial Engineering

Subject Co-ordinator - Prof. A.N. Bhaskarwar

Co-ordinating Institute - IIT - Delhi

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

Lecture 1 - General Introduction Definitions  
Lecture 2 - General Introduction, Definitions, Surface Tension  
Lecture 3 - Surface Tension Free Energies and Adsorption  
Lecture 4 - Properties over Curved Surfaces  
Lecture 5 - Total Surface Energy  
Lecture 6 - Interfacial Tension Entropy, Cohesion, Adhesion  
Lecture 7 - Cohesion, Adhesion and Spreading  
Lecture 8 - Spreading from Liquids and Solids  
Lecture 9 - Spreading, Interfacial Tensions, Surface Tensions  
Lecture 10 - Spreading, Contact Angles Free Energies  
Lecture 11 - Spreading/Contact Angles Rough Surfaces, Free Energies  
Lecture 12 - Spreading/Contact Angles Work of Adhesion, De-wetting  
Lecture 13 - Work of Adhesion, Surface and Interfacial Tensions  
Lecture 14 - Surface and Interfacial Tensions  
Lecture 15 - Surface and Interfacial Tensions  
Lecture 16 - Wetting Balance Method Spreading Coefficient Work of Adhesion Sessile Drop Method, Positive S  
Lecture 17 - Indirect and Direct Methods for Positive S, Adhesion Energies Interfacial Potentials  
Lecture 18 - Surface and Interfacial Potentials Distribution and Contact Potentials  
Lecture 19 - Diffusion Potential Surface and Interfacial Potentials Components of Contact Potential  
Lecture 20 - Electrically Charged Monolayers Gouy Theory  
Lecture 21 - Equations of State, Cohesion Repulsion, Limiting Area  
Lecture 22 - Condensed and Liquid Expanded Monolayers Phase Transformations  
Lecture 23 - Films of Polymers Molecular Weight, Surface Viscosity Drag, Canal Method  
Lecture 24 - Canal Method Joly's Semi-Empirical Correction Rotational Torsional Surface Viscometer Compression  
Lecture 25 - Magnitudes of Surface Compressional Moduli Surface Waves and Ripples  
Lecture 26 - Surface waves and Ripples, Velocity Effect of Surface Tension and Surface Compressional Modulus  
Lecture 27 - Surface waves and ripples, velocity effect of surface tension and surface compressional modulus  
Lecture 28 - Shear Elastic Moduli, Yield Stress Fibres from MLs, Surface Reactions  
Lecture 29 - Surface Reactions, Comparison with Bulk-Phase Reactions Steric Factors, Inhibition

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- Lecture 30 - Hydrolyses of Esters by Alkali Acid or Enzyme Photochemical Reactions in Monolayers Polymerization
- Lecture 31 - Catalytic Effects Reactions in Emulsions Complex Formation
- Lecture 32 - Complex Formation Penetration into Monolayers Thermodynamics of Penetration Adsorption from Vapour
- Lecture 33 - Introductory Concepts Resistances and their Magnitudes Evaporation and its Retardation
- Lecture 34 - Evaporation and its Retardation Resistances and their Analysis Diffusional Resistance in Gas Phase
- Lecture 35 - Resistances in Liquid Phase and Interface and Their Importance Some Effects and Applications, Theories
- Lecture 36 - Surface Instability Theories of Mass Transfer Experiments on static and Dynamic Systems
- Lecture 37 - Colloids, Aerosols, Emulsions Foams, Coagulation Smoluchowski's Theory