

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

NPTEL Video Course - Mechanical Engineering - NOC:Interfacial Fluid Mechanics

Subject Co-ordinator - Prof. Harish N Dixit

Co-ordinating Institute - IIT - Madras

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

- Lecture 1 - Non-dimensional numbers in interfacial flows
- Lecture 2 - Integral form of governing equations
- Lecture 3 - Boundary (Jump) conditions at a fluid-fluid interface (no surface tension)
- Lecture 4 - On surface tension and interfacial energy
- Lecture 5 - Introduction to surface tension effects
- Lecture 6 - Boundary (Jump) conditions at a fluid-fluid interface (with surface tension) - Part 1
- Lecture 7 - Boundary (Jump) conditions at a fluid-fluid interface (with surface tension) - Part 2
- Lecture 8 - Summary of equations
- Lecture 9 - Capillary statics shape of meniscus - Part 1
- Lecture 10 - Capillary statics shape of meniscus - Part 2
- Lecture 11 - Shape of static meniscus-Energy minimisation - Part 1
- Lecture 12 - Calculus of variations (a primer): Euler-Lagrange equations
- Lecture 13 - Shape of static meniscus-Energy minimisation - Part 2
- Lecture 14 - Method of Lagrange multipliers
- Lecture 15 - On wetting and shape of a drop
- Lecture 16 - The Young's Equation: Partial wetting
- Lecture 17 - Variational approach to the Young-Laplace equation - Part 1
- Lecture 18 - Variational approach to the Young-Laplace equation - Part 2
- Lecture 19 - Shape of a puddle - large/heavy drops
- Lecture 20 - Wetting on rough and textured surface - Part 1
- Lecture 21 - Wetting on rough and textured surface - Part 2
- Lecture 22 - Wetting on rough and textured surface - Part 3
- Lecture 23 - Law of capillary rise
- Lecture 24 - Dynamics of capillary rise
- Lecture 25 - Dynamics of capillary rise: Analysis of regimes
- Lecture 26 - Forced wetting and coating flows
- Lecture 27 - More on coating and Landau-Levich equation
- Lecture 28 - Lubrication approximation and thin films
- Lecture 29 - Free surface flows and interface conditions

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

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- Lecture 30 - Uniform flow down an incline
- Lecture 31 - Shape of a falling jet
- Lecture 32 - A quick tour of stability analysis
- Lecture 33 - Rayleigh-Plateau instability - Part 1
- Lecture 34 - Rayleigh-Plateau instability - Part 2
- Lecture 35 - Rayleigh-Plateau instability - Part 3
- Lecture 36 - Rupture of thin films - Part 1
- Lecture 37 - Rupture of thin films - Part 2
- Lecture 38 - Rupture of thin films - Effect of van der Waals force
- Lecture 39 - Rupture of thin films - Part 3
- Lecture 40 - Rupture of thin films - Part 4
- Lecture 41 - Benard-Marangoni Instability - Part 1
- Lecture 42 - Benard-Marangoni Instability - Part 2
- Lecture 43 - Benard-Marangoni Instability - Part 3
- Lecture 44 - Benard-Marangoni Instability - Part 4
- Lecture 45 - Kelvin helmholtz instability - Part 1
- Lecture 46 - Kelvin helmholtz instability - Part 2
- Lecture 47 - Kelvin helmholtz instability - Part 3
- Lecture 48 - Kelvin helmholtz instability - Part 4
- Lecture 49 - Contact angle hysteresis
- Lecture 50 - Thin film down an incline-a contact line problem - Part 1
- Lecture 51 - Thin film down an incline-a contact line problem - Part 2
- Lecture 52 - Local flow near a moving contact line
- Lecture 53 - Modelling of moving contact line