

# Micro fluidics - Video course

## COURSE DETAIL

Lec. No	Topics
1.	Introduction to Microfluidics
2.	Microfluidics: Some Application Examples
3.	Microfluidics: Some More Application Examples
4.	Equations of Conservation
5.	Navier Stokes Equation
6.	Navier Stokes Equation (Contd.)
7.	Energy Equation
8.	Energy Equation (Contd.) and Species Conservation Equation
9.	Pressure –driven Microflows
10.	Pressure-driven Microflows (Contd.)
11.	Pressure-driven Microflows (Contd.)
12.	Pressure-driven Microflows (Contd.)



NP-TEL

**NPTEL**

<http://nptel.ac.in>

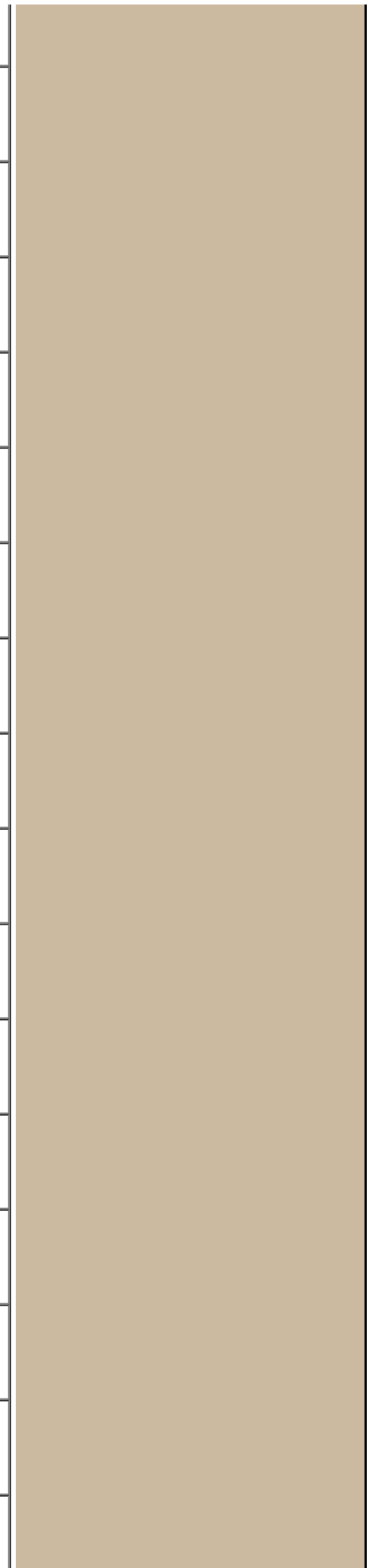
**Mechanical  
Engineering**

**Coordinators:**

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13.	Pressure-driven Microflows (Contd.)
14.	Some Examples of Unsteady Flows
15.	Some Examples of Unsteady Flows (Contd.)
16.	Some Examples of Unsteady Flows (Contd.)
17.	Stokes Drag on a Sphere
18.	Stokes Drag on a Sphere (Contd.) and Introduction to Lubrication Theory
19.	Lubrication Theory (Contd.)
20.	Lubrication Theory (Contd.)
21.	Boundary Condition in Fluid Mechanics : Slip or No-slip?
22.	Boundary Condition in Fluid Mechanics: Slip or No-slip? (Contd.)
23.	Surface Tension Driven Flows
24.	Surface Tension Driven Flows (Contd.)
25.	Surface Tension Driven Flows (Contd.)
26.	Surface Tension Driven Flows (Contd.)
27.	Surface Tension Driven Flows (Contd.) and Modulating Surface Tension
28.	Modulating Surface Tension (Contd.)
	Thin Film Dynamics

29.	
30.	Thin Film Dynamics (Contd.)
31.	Thin Film Dynamics (Contd.)
32.	Thin Film Dynamics (Contd.)
33.	Lab on a CD
34.	Lab on a CD (Contd.)
35.	Introduction to Microfabrication
36.	Electrokinetics
37.	Electrokinetics (Contd.)
38.	Electrokinetics (Contd.)
39.	Electrokinetics (Contd.)
40.	Electrokinetics (Contd.)
41.	Electrokinetics (Contd.)
42.	Dispersion
43.	Introduction to Nanofluidics
44.	Introduction to Nanofluidics (Contd.) and Molecular Dynamics Simulations
45.	Introduction to Molecular Dynamics Simulations (Contd.)



46.	Biomechanics
47.	Biomechanics (Contd.)
48.	Nanofluidic Energy Conversion

