CE 261: Fluid Mechanics

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Fluid Flow in Nature

- Fluid flow in natural rivers and subsurface environment

Fluid Flow in Nature

- Extreme events

Fluid Flow in Nature

- Fluid-Structure interaction

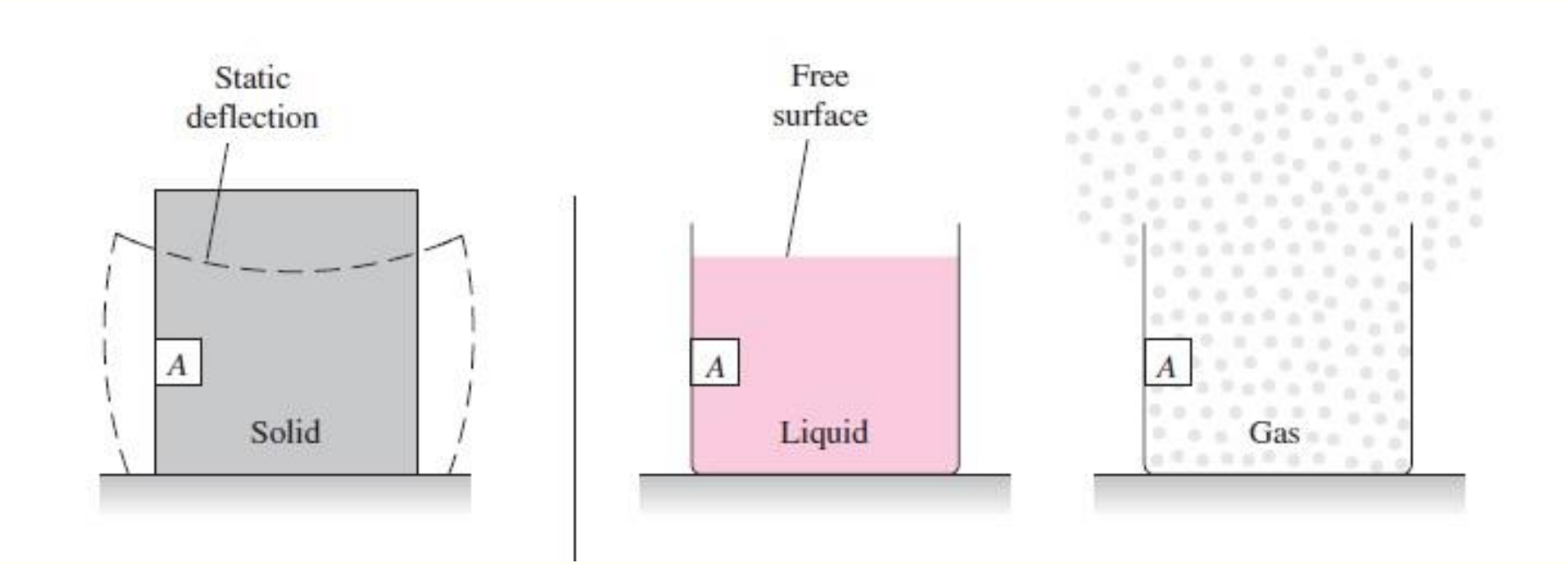
Fluid Flow

- Water vehicles and automobiles
- Food and drinks
- Traffic flow
- Electronic devices
- Human body

What is fluid ???

Fluid is a substance that may flow under the action of shear stress

SOLID vs FLUID



Physical Properties of Fluid

- Density
- Specific Volume
- Specific Weight
- Specific Gravity
- Compressibility
- Viscosity
- Surface Tension
- Pressure
- Buoyancy

Fluid Mechanics

Fluid mechanics is the study of fluids either in motion or at rest

Our Interest with Fluid Mechanics

Analysis of the behavior of fluids is based upon the fundamental laws of applied mechanics that relate to the conservation of mass, energy and momentum

Syllabus

- Kinematics of Fluid Flow
- Fluid Flow concepts and basic equations
  - Continuity equation
  - Energy Equation
- Momentum equation and Forces in fluid flow

Reference Books:

- Fluid Mechanics with Engineering Applications (7th Ed.) by Robert L. Daugherty and Joseph B. Franzini
- Fluid Mechanics (7th Ed.) by Frank M. White


Thank
you!!