CEN 212 FLUID MECHANICS

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FLUID FLOW PHENOMENA

- Definitions:

1. Inviscid Flow: It assumes the flow of a fluid which viscosity is zero.
2. Uniform Flow: If the velocity and thee cross-sectional area is the same in each and every point, this type of flow is uniform.
3. Steady-state: If the properties of a fluid at any point do not change with time, this is called steady-state flow.
4. One dimensional flow: Inmany simple situations only one velocity comonent is required. This situation is called one-dimensional flow.

FLUID FLOW PHENOMENA

- **TYPES OF FLOW**

The fluid flow is classified in to two types depending on the conditions present.

LAMINAR FLOW

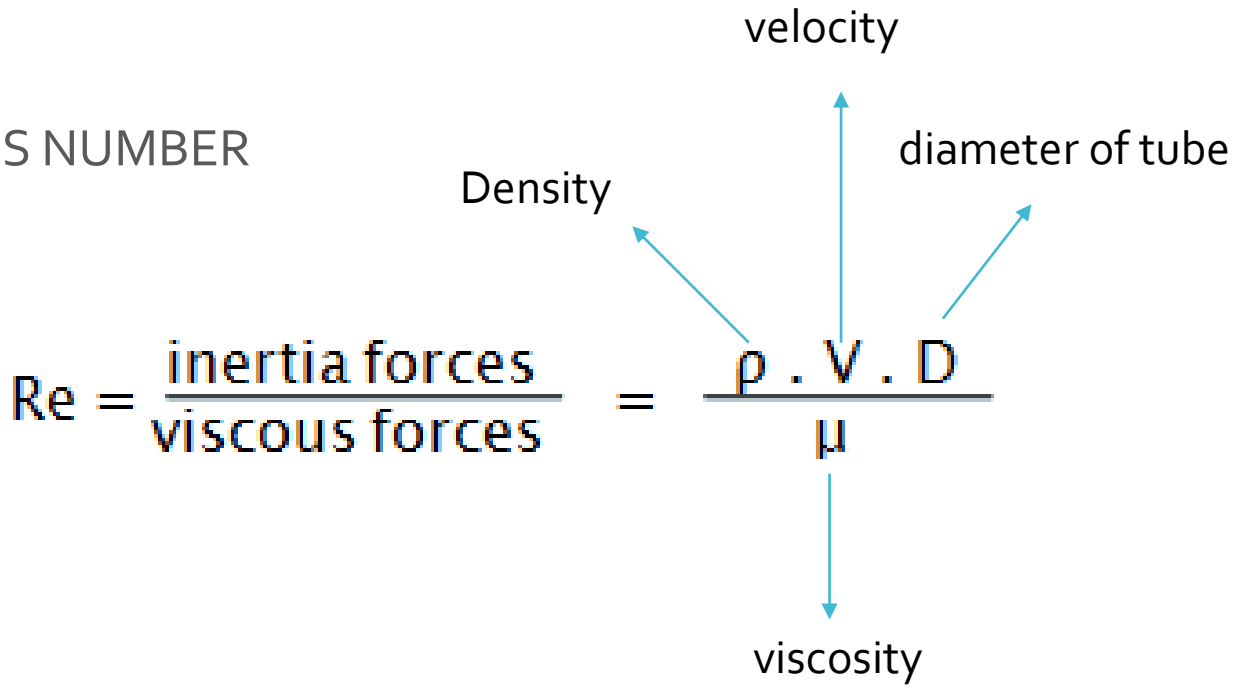
At low velocities fluids tend to flow without lateral mixing. Thsi regime is called Laminar Flow.

TURBULENT FLOW

At high velocities eddies form leading the lateral mixing. This regime is called Turbulent Flow.

FLUID FLOW PHENOMENA

- REYNOLDS NUMBER



FLUID FLOW PHENOMENA

- For a straight circular pipe;

- Nre < 2100 LAMINAR FLOW
- 2100 < Nre < 4000 TRANSIENT REGION
- Nre > 4000 TURBULENT FLOW