

FLUID MECHANICS

- Continuum mechanics; conservation of mass and momentum,
- Energy; stress, kinematics, and constitutive equations.
- Navier-Stokes equations, Reynolds number. Solutions for simple flow states.
- Inviscid flows, Kelvin circulation theorem,
- Vortical flows. Waves in fluids; acoustics, water waves.
- Laplace's Tidal Theory.
- Boundary layers. Flow instabilities.
- Mixing, and turbulence in unbounded and bounded flows.