Course Name: Hydrodynamics

Course Number: 20626

Credit: 3

Course Content (outline):

- Vectors algebra: Scalar and vector field, Divergence and Grad, Stokes’ theorem, Tensors
- Kinematics of flow field
- Eularian and Lagrangian approaches
- Integral form of equations
- Rotation and strain
- Conservation of mass equation
- Velocity potential, Potential flow
- Conservation of momentum equation (Navier-Stokes’ Eq.)
- Incompressible and inviscid flow (ideal flow) Eq., Stream function
- Two-dimensional motion: Sink, Source, Superposition of flows, Method of images
- Viscous fluid motion
- Water wave mechanics
- Turbulent flow

References: