SUBJECT NO-PH20101, SUBJECT NAME- Fluid mechanics and Elasticity

LTP- 3-0-0,CRD- 3

SYLLABUS :-

Essential basics of vector analysis (review) and Cartesian tensors. Fluid mechanics: Eulers equations, Bernoullis equation, potential flow, incompressible fluids, momentum and energy fluxes in fluid mechanics, circulation, gravity waves,internal waves, waves in rotating fluids, viscous fluids, equations of motion for viscous fluids (Navier Stokes equations) in Cartesian, cylindrical and spherical coordinate systems, damping of gravity waves, the law of similarity, flow in a pipe, oscillatory motion in viscous fluids, laminar boundary layers, steady flow of gas. Elasticity: Stress and strain tensors, thermodynamics of deformation, Hookes law, homogenoeus deformations, equations of equilibrium for isotropic bodies, elastic properties of crystals (brief), equation of equilibrium for a plate, elastic waves in an isotropic medium, surface (Rayleigh) waves.