SUBJECT NO-CH30012, SUBJECT NAME- TRANSPORT PHENOMENA

LTP- 3-1-0,CRD- 4

SYLLABUS :-

Prerequisite - noneTransport by molecular motion: Newtons Law of viscosity, Fourier s law of heat conduction, Ficks law of diffusion. Transport in laminar flow or in solids in one dimension: development of continuity (conservation) equations, velocity, temperature and concentration profiles, momentum, energy and mass fluxes.Equations of change for isothermal, non-isothermal and multicomponent systems. Navier-Stokes equation, equation of energy, equations of motion for free and forced convection (heat/mass).Unsteady state viscous flow, heat conduction and mass diffusion.Momentum, energy and mass transport in boundary layer with relevant analogies.Transport in turbulent flow-time-smoothened equations of change.Interphase momentum, heat and mass transfer.Text Book:1.Transport Phenomena by Bird, Stewart and Lightfoot2.Introduction to Heat and Mass Transfer by Incropera and Dewitt3.Fluid Mechanics by Fox and McDonald4.Diffusion : Mass Transfer in Fluid Systems by E. L. Cussler