SUBJECT NO-PH31007, SUBJECT NAME- CLASSICAL MECHANICS-II

LTP- 3-0-0,CRD- 3

SYLLABUS :-

SYLLABUS:Review of Lagrangian and Hamiltonian formulation; Canonical invariants; infinitesimalcanonical transformations and conservation laws, angular momentum PB relations;Hamilton-Jacobi theory, characteristic function, action-angle variables; connections with geometricaloptics and wave mechanics.Michelson-Morley experiment, postulates of special relativity, Lorentz transformations andits consequences (length contraction, time dilation,relativistic optics), 4-vectors and 4-tensors, Lorentz group, massÃ¢ÂÂenergy equivalence, proper time as action, relativistic mechanicsof a particle in an external electromagnetic field, equation of motion and its applications.Newtonian gravity; principle of equivalence; general covariance, gravity as curvature ofspacetime; metric tensor and affine connection; geodesic equation and deviation; curvatureand EinsteinÃ¢ÂÂs field equation (brief); Newtonian limit; gravitational redshift; Schwarzschildmetric (no derivation),Unbound orbits and deflection of light.