DEPARTMENT OF APPLIED PHYSICS

Capsule courses to be offered to the students of the odd and the even semester, respectively:

APR 11101 **Physics-I** **[3-0-0]**

Properties of Matter:
Cantilever, Torsion, Viscous flow of fluids and Poissuellie's equation for compressible and incompressible fluids, dynamics of rigid bodies- center of mass and moment of inertia.

Thermodynamics:
Carnot's cycle and heat engines, entropy, Claussius clapeyron equation and phase transition

Optics:
Diffraction Fresnel diffraction: Fresnel half-period zone plates, straight edge, rectilinear propagation, Fraunhoffer diffraction: Diffraction at a slit, half-period zones, polarization Rotation of plane of polarization, origin of optical rotation in liquids and in crystals, photometry, Double refraction and optical rotation:

APR 12101 **Physics-II** **[3-0-0]**

Classical Mechanics
Generalised coordinates, Lagrangian and Hamiltonian Mechanics, Rotational system, Corriolis force, Canonical systemHamilton's principle and characteristic functions; Hamilton-Jacobi equation. Canonical transformations.

Advanced Magnetism
Surface current & Density; Concept of pole; Theory of magnetism- dia, para, ferro; Antiferromagnetism and ferrimagnetism.

Nanomaterials
Introduction, Nanostructures – carbon clusters, carbon nanotubes, quantum nanostructures, nanostructured crystals, Different methods of preparation of nanomaterials, Characterisation – SEM, Tem, XRD, AFM, Applications of nanomaterials