SUBJECT NO-PH11003, SUBJECT NAME- PHYSICS OF WAVES

LTP- 3-1-0,CRD- 3

SYLLABUS :-

Review of Simple Harmonic Motion, Damped and Forced oscillations, Resonance, Coupledoscillations, Normal modes. Wave Motion, longitudinal and transverse waves, wave equation, plane waves, phase velocity,superposition, wave packets and group velocity, dispersion relations, two- and threedimensionalwaves. Electromagnetic Waves, Energy-momentum, Poynting's theorem,reflection and refraction, Stokes relations. Superposition of waves, Interference, Coherence, Two-beam and Multi-beam interference,Fresnel Biprism and Mirrors, Newton's rings, Michelson and Fabry-Perot Interferometers,Thin films, Diffraction, Fraunhofer single slit diffraction and Grating, Polarisation,Birefringence, Retarders. Failure of classical physics, Planck's spectrum, Compton Effect, Davisson-Germer Experimentand Thomson Experiment, de Broglie waves, Uncertainty principle. Observables andHermitian Operators, Wave function and Schrodinger equation, Probability interpretation,One-dimensional problems.