SUBJECT NO-PH41014, SUBJECT NAME- Condensed Matter Physics-I

LTP- 3-0-0,CRD- 3

SYLLABUS :-

Structure of solids, lattice translation, symmetry, unit cell, simple crystal structures, diffraction - Bragg s law, structure factor, different methods for structure determination, point defects, dislocation. Crystal binding - ionic, covalent, weak bonding. Cohesive energy and compressibility. Vibration of lattice - mono- and di-atomic chains , periodic lattice, phonons, phonon spectrum , heat capacity. Thermal expansion and resistivity, free electron theory. Periodic potentials in one dimension, electrons in weak periodic potential, tight binding approximation, bands , Brillouin zone, motion in magnetic field.