

COURSE – 3 Solid State Physics

Credits - 4

Paper code PHY503

BLOCK 1 CRYSTALLINE STATE AND CRYSTAL STRUCTURE

- Unit –1 : CRYSTALLINE STATE AND CRYSTALS STRUCTURE
- Unit –2 : NON CRYSTALLINE STATE
- Unit –3 : ELEMENTS OF X-RAY DIFFRACTION
- Unit –4 : EXPERIMENTAL TECHNIQUES FOR STRUCTURED DETERMINATION

BLOCK 2 IMPERFECTIONS IN CRYSTALS

- Unit –5 : IMPERFECTIONS IN CRYSTALS
- Unit –6 : DIFFUSION
- Unit –7 : DISLOCATIONS

BLOCK 3 FREE ELECTRON THEORY BAND THEORY OF SOLIDS

- Unit –8 : FREE ELECTRON THEORY
- Unit –9 : BAND THEORY OF SOLIDS
- Unit –10 : SEMICONDUCTORS
- Unit –11 : SOLID STATE LASERS

BLOCK 4 LATTICE VIBRATIONS AND THERMAL PROPERTIES

- Unit –12 : ELASTIC WAVES IN SOLIDS
- Unit –13 : INFRA-RED ABSORPTION IONIC CRYSTALS
- Unit –14 : LATTICE HEAT CAPACITY

BLOCK 5 DIELECTRICS AND FERROELECTRICS

- Unit –15 : MACROSCOPIC DESCRIPTIONS OF DIELECTRICS
- Unit –16 : MEASUREMENT OF DIELECTRIC CONSTANT
- Unit –17 : FERROELECTRICS

BLOCK 6 MAGNETISM & SUPERCONDUCTIVITY

- Unit –18 : MAGNETISM
- Unit –19 : SPONTANEOUS MAGNETIZATION
- Unit –20 : OCCURRENCE OF SUPERCONDUCTIVITY
- Unit –21 : SUPERCONDUCTIVITY – THEORETICAL EXPLANATIONS

