# COURSE OBJECTIVES AND COURSE OUTCOMES

## T. Y. B. Sc. SEMESTER - V

## PHYSICS PAPER - II

## SUBJECT: SOLID STATE PHYSICS (USPH502)

| Sr. No. | Course Objectives | Course Outcomes |
|---|---|---|
| 1) | Describe crystal structure, Bravais lattices, crystal systems, Elements of crystal symmetry, Miller indices, Reciprocal lattice and X ray diffraction | Explain crystal structure, Bravais lattices, crystal systems, Elements of crystal symmetry, Miller indices, Reciprocal lattice and X ray diffraction |
| 2) | Investigate classical free electron theory of metals and its drawbacks | Examine classical free electron theory of metals and its drawbacks |
| 3) | Explain quantum theory of free electrons, Fermi Dirac Statistics, Fermi distribution function, heat capacity of electron gas and electrical conductivity from quantum mechanical considerations | Analyze quantum theory of free electrons, Fermi Dirac Statistics, Fermi distribution function, heat capacity of electron gas and electrical conductivity from quantum mechanical considerations |
| 4) | Investigate Band theory of solids, Kronig -Penney model, Brillouin zones and distinction between metals, insulators and intrinsic semiconductors | Explain Band theory of solids, Kronig - Penney model, Brillouin zones and distinction between metals, insulators and intrinsic semiconductors |
| 5) | Examine the behavior of charge carriers in a semiconductor and their charge densities | Analyze the behavior of charge carriers in a semiconductor and their charge densities |
| 6) | Discuss p-n junction, p-n junction as a diode, current components in a p-n junction, Volt Ampere characteristics and temperature dependence of p-n characteristics | Understand p-n junction, p-n junction as a diode, current components in a p-n junction, Volt Ampere characteristics and temperature dependence of p-n characteristics |
| 7) | Investigate Superconductivity, destruction of superconductivity by magnetic field, Meissner effect, BCS theory of superconductivity, Type I and Type II superconductors and Vortex state | Analyze Superconductivity, destruction of superconductivity by magnetic field, Meissner effect, BCS theory of superconductivity, Type I and Type II superconductors and Vortex state |

# COURSE OBJECTIVES AND COURSE OUTCOMES

## T. Y. B. Sc. SEMESTER - VI

## PHYSICS PAPER - II

## SUBJECT: ELECTRONICS (USPH602)

| Sr. No. | Course Objectives | Course Outcomes |
|---|---|---|
| 1) | To discuss basics of semiconductor devices | Student will be able to understand working of various semiconductor devices like FET , UJT and SCR and their applications |
| 2) | To analyse working of operational amplifiers and applications | Student will be able to develop basic circuits using operational amplifier and demonstrate its application |
| 3) | To introduce and discuss working of multivibrators | Student will gain knowledge about different waveform generation, waveform conversion and wave shaping techniques |
| 4) | To discuss working of power supply | Student will be able understand working of power supply and use the them more efficiently in the laboratories |
| 5) | To discuss the working of basic logic families | Student will develop concepts of logic families and logic families and their comparative analysis |
| 6) | To introduce concepts of digital communication | Student can gain knowledge about digital communication techniques |