

# DEPARTMENT OF PHYSICS

## Course Outcome (CO)

### Semester I

**Paper Code –PHSGCOR01T & P**

**Paper Name – Mechanics**

**CO1** : Concept of vector , vector algebra and various mathematical methods .

**CO2** :Application of Newton’s laws of motion to solve various problems related to day to day life .

**CO3** : Know about special theory of relativity .

**CO4** :Effect of force on various typed of materials is described and physical properties like elasticity,different moduli etc. along with their relation.

**CO5** : Learn how does a body oscillate without damping amplitude and what are the necessary conditions for it .

**CO6** :Know about gravitation , Geosynchronous orbits and many more .

### Semester II

**Paper Code – PHSGCOR02T & P**

**Paper Name – Electricity and magnetism**

**CO1** : Students will be able to understand the concept of the electric force,electric field and electric potential for stationary charges.They are able to calculate electric potential and electric field by using Gauss’s law.

**CO2** :Student will understand the dielectric phenomenon and effect of electric field on dielectric.

**CO3** : Study the concept of magnetic field,magnetic field for steady currents using Biot-Savart’s and Ampere’s Circuital laws .

**CO4** : Students will learn magnetic materials and its properties.

**CO5** : Understand the linear network , Maxwell's Equations and Electromagnetic Wave Propagation .

### **Semester III**

**Paper Code – PHSGCOR03T & P**

**Paper Name – Thermal Physics and Statistical Mechanics**

**CO1** : Study the concept of laws of Thermodynamics.

**CO2** : To learn about thermodynamic functions , variables and their relations .

**CO3** : Understand the kinetic theory of gases .

**CO4** : Study the theory of radiation .

**CO5** : To get the knowledge about Maxwell Boltzmann statistics , Bose Einstein statistics and Fermi Dirac Statistics .

**Paper code – PHSSECO1M**

**Paper Name – Basic Instrumentation Skills**

**CO1:**History and need of Instrumentation, Components of measurement system, Standards of Measurement, errors in measurement. Importance and methods of calibration. Static and dynamic characteristics of measurements.

**CO2:** Transduction principle, types of transducers. Use of transducers in measurement of displacement, force and temperature.

**CO3:** Comparative study of Pressure scales, pressure units, concept of vacuum, Different pressure measurement systems. Types and use of diaphragms and strain gauges

**CO4:** Need and use of signal conditioning. Detailed study of construction, working and characteristics of OPAMP. Circuits indicating use of OPAMP for different applications. Study of filter circuits for use as signal conditioning component

**CO5:** Methods of analog display and recording. Graphical and Oscillographic recorders.

## **Semester IV**

**Paper Code – PHSGCOR04T & P**

**Paper Name – Waves and Optics**

**CO1:** Doppler effect and its use in in day-to-day life. Using this concept students can get idea of expanding universe.

**CO2:** Studying sound concept we can understand why the sound of male and female are different and the reason behind it.

**CO3:** Image formation related to geometrical optics, Deviation, Magnification, Concept for Equivalent lens and Cardinal Points.

**CO4:** Different types of monochromatic and chromatic aberrations and Achromatism in lenses.

**CO5:** Construction and working of Simple Microscope, Compound Microscope, Ramsden's Eyepiece and Huygen's Eyepiece.

**CO6:** Interference and diffraction of light, Formation of fringes, Resolution.

**CO7:** Concept of Polarization, Double refraction.

**Paper Code – PHSSECO2M**

**Paper Name – Computational Physics Skills**

**CO1:** Learn the Basic Programming Concept.

**CO2:** Improve the logical as well as Computational ability.

**CO3:** Memory allocation and utilization technique learning.

**CO4:** Applicability of computer resources in physics.

**CO5:** Learn Graphical technique using some Graphical Commands in C programming.

## **Semester V**

**Paper Code – PHSGDSE01T & P**

**Paper Name – Digital , Analog Circuits and Instrumentation**

**CO1:** An introduction to digital electronics which is useful in digital computers. Also logic gates and their applications.

**CO2:** Students will know about the semiconductor devices and amplifiers .

**CO3:** Characteristics and working of operational amplifiers which are useful in various medical and scientific investigations to amplify the signals.

**CO4:** Generation of high frequency signals using oscillator circuits and their applications in radio and TV communication

**CO5:** Concepts of regulated power supply, rectifiers, filters and regulators.

## **Semester VI**

**Paper Code – PHSGDSE03T & P**

**Paper Name – Solid state Physics**

**CO1:** Students will able to study difference between crystalline and amorphous material, crystal structures, miller indices, interplaner distances, interatomic forces and bonds. From this study students get to learn the basics of solid state physics.

**CO2:** Students will understand Bragg's diffraction, Bragg's law. X-ray diffraction and characterization techniques. With the help of this knowledge students know

the principles of structures determination by X-ray diffraction method. This would be helpful in performing experiments in nanotechnology.

**CO3:**in metals, Energy levels of free electrons in one and three dimensions. They will learn significance of Pauli's exclusion principle, Bloch theorem, Fermi energy, and Hall effect and energy bands in materials.

**CO4:** Students can Describe and explain the behaviour of permanent magnet including induced magnetism, behaviour of paramagnetic, diamagnetic, ferromagnetic materials in terms of magnetic domain.

**CO5:** Students can understand superconducting materials, their properties .