DEPARTMENT OF PHYSICS
B.Sc. PHYSICS –COURSE OUTCOMES

I B.Sc.

SEMESTER – I PAPER -1

TITLE OF THE COURSE: MECHANICS & OSCILLATIONS

On successful completion of this course students will:

CO 1 : Understand integration of vectors

CO 2 : Derive Stroke's, Greens and Gauss theorems

CO 3 : Understand Collisions two and three dimensions and study the relation between scattering cross section and impact parameter

CO 4 : Identify and apply the laws of mechanics along with the necessary mathematics for solving numericals.

CO 5 : Gain knowledge on Central forces – definition and examples, Conservative nature of central Force, Conservative force as a negative gradient of potential energy, Equation of motion under central force

CO 6: Derive Kepler's laws, Coriolis force and its expressions

CO 7: Understand physical characteristics of SHM and obtaining solution of the oscillator using differential equations and different types of Oscillations

CO 8 : Use Lissajous figures to understand simple harmonic vibrations of same frequency and different frequencies

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I B.Sc

SEMESTER II PAPER -11

TITLE OF THE COURSE: THERMAL PHYSICS

On successful completion of this course students will:

CO 1: Gain knowledge in Kinetic theory of gases

CO 2: Understand the process of thermal conductivity, viscosity and diffusion in gases

CO 3: Understand the nature of thermodynamic properties of matter like Internal Energy, Enthalpy, entropy, temperature, pressure and specific volume

CO 4: Understand the significance of first law and second of thermodynamics and implications of the second law of thermodynamics and its

CO 5: Evaluate entropy changes in a wide range of processes and determine the reversibility or irreversibility of a process from such calculations.

CO 6: Understand the interrelationship between thermodynamic functions and ability to use such

relationships to solve practical problems.

CO 7: Gain knowledge about classical and quantum statistical mechanics, including Boltzmann, Fermi-Dirac, and Bose-Einstein statistics

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II B.Sc

SEMESTER III PAPER -111

TITLE OF THE COURSE: ELECTROMAGNETIC THEORY

On successful completion of this course students will:

CO 1: Gain Knowledge on the basic concepts of electric and magnetic fields.

CO 2: Acquire knowledge on the concept of magneto statics.

CO 3: Learn different laws of Magneto statics

CO 4: Understand the concept on electromagnetic induction and applications.

CO 5: Acquire knowledge how to apply electromagnetic induction laws to Solenoid, Toroid etc.

CO 6: Gain knowledge on EM waves propagation and their properties.

CO7: Understand the concept of Network elements and network theorems

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II B.Sc.

SEMESTER IV PAPER -IV

TITLE OF THE COURSE: WAVES & OPTICS

CO 1: On successful completion of this course students will:

CO 2: Learn Transverse wave Propagation along stretched string

CO 3: Longitudinal and Transverse vibrations along Bars.

CO 4: Gain knowledge on various theories of light

CO 5: Acquire skills to identify and apply formulas of optics and wave physics

CO 6: Understand the properties of light like reflection, refraction, interference, diffraction etc

CO 7: Understand the applications of diffraction and polarization.

CO 8: Understand the applications of interference in design and working of interferometer

III B.Sc

SEM VI PAPER V

TITLE OF THE COURSE: MODERN PHYSICS

On successful completion of the course, the students will:

CO1: To understand the difference between Atomic and Molecular spectroscopy.

CO2: Understand the intuitive ideas of the Quantum physics and Nuclear physics.

CO3: Derive Schrodinger time dependent and time independent wave equations

CO4: To understand dual nature of matter

CO5: Gain knowledge on classification of various crystal systems

CO6: Understand the basics of crystallography, x-ray diffraction and Super conductivity.

CO7: Students will develop a comprehension of the Current basis of broad knowledge in Modern physics.

CO8: Learners will build on a critical thinking, analytical reasoning, and problem solving skills.

III B.Sc

SEM –VI PAPER VI

TITLE OF THE COURSE: ELECTRONICS

CO1: Study basics of semiconductors & devices and their applications in different areas.

CO2: Identify the unique vocabulary associated with electronics and learn the basic concepts of Semiconductor diodes such as P•N junction diode, Zener diode and their characteristics

CO3: To apply the basics of diode to describe the working of rectifier circuits such as Full and half wave rect ifiers and solve examples on rectifiers for parameters such as Capacitance, load and source effect, line and load regulations, and circuit current.

CO4: Learn how to draw the structure of bipolar junction transistor and gain Knowledge on the operation of ea ch device in terms of junction bias voltage and charge carrier movement. Identify and explain the various current components in a transistor.

CO5: Gain knowledge on the concepts of the amplifier circuit for given specification and analyze them to di scuss oscillator principles, oscillator types, and frequency stability as it relates to its operation. Modulation techniques.

CO6: Acquire Knowledge on different number system. Solve examples on converting one form of number system to another form, Boolean laws and theorems, the different logic gates using truth table. Analyze and design different adder circuits.

SEM –VI PAPER VII (In lieu of Project)

TITLE OF THE COURSE: NANOSCIENCE

CO1: Learn fundamental knowledge of the Nanoscience and related fields.

CO2: Acquire an understanding the Nanoscience and Applications

CO3: Understand the broad outline of Nanoscience and Nanotechnology.

CO4: Understand the synthesis of nanomaterials and their application and their impact on the Environment

CO5: Apply their learned knowledge to develop nanomaterials.

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