

Course Outcomes for B.Sc Physics

Mechanics (PHY-101) Course Outcomes

- Understand the Newtonian mechanics of a single particle and system of particles.
- Understand and apply Lagrange's formalism with special emphasis on generalised co-ordinates.
- Examine the link between symmetry properties and conservation laws.
- Understand the dynamics involved in a rigid body.

Electricity and Magnetism (PHY-102) Course Outcomes

- Understand the basic mathematical tools of physics.
- To understand the basic concepts of Electric field, Electric potential, Magnetic field and magnetic properties of matter.
- Gain knowledge of Gauss laws and solve the electric field for various geometric objects.
- Enable to understand the different types of magnetic field and concept of hysteresis.
- Able to derive the Maxwell's equation in free space and material media and understand the concept of poynting vector.

Properties of Matter, Kinetic Theory and Relativity (PHY-201) Course Outcomes

- Understand the principles of elasticity and the strength of solid materials.
- Understand the various aspects of kinetic theory of gases and different transport mechanisms.
- Understand and appreciate the concept of space-time and the relative character of the physical quantities.

Electromagnetic Induction and Electronic Devices (PHY-202) Course
Outcomes

- Understand the behaviour of transient currents and alternating currents in LCR circuit.
- Acquire basic knowledge of physical and electrical conducting properties of semiconductors.
- Apply the basic ideas of transistor in the construction of different types of feedback amplifiers and oscillators.

Computer Programming, Thermodynamics (PHY-301) Course
Outcomes

- Understand flowcharts, algorithms and different statements and utilize them in solving different problem.
- To understand the concept of first and second law of thermodynamics to get knowledge of various thermodynamic processes.
- To understand, analyse and apply the concepts and facts about the basic ideas behind different heat engines.
- To understand, analyse and apply the concepts and facts of entropy, thermodynamic potentials, Maxwell's thermodynamic relations and phase transitions.

Optics – I (PHY-302), Course Outcomes

- To understand mathematical methods like Fourier transform to solve the various problems in physics.
- To understand the various aspects of geometrical optics.
- To study the characteristic properties of light using the phenomenon of interference by division of wave front.

Statistical Mechanics (PHY-401), Course Outcomes

- To understand and analyse some of the basic concepts of statistical physics.

- To gain knowledge of three statistics and use them in practical applications.

Optics –II (PHY-402), Course Outcomes

- To study the characteristic properties of light using the phenomenon of interference by division of amplitude.
- To study the theory of diffraction, its types and polarization of light and their applications in devising optical elements.

Solid State Physics (PHY-501), Course Outcomes

- Understand basic concepts and different crystal lattices and distinguish the crystal structures. Procedure behind the construction of reciprocal lattice is understood and applied the same in explaining the diffraction patterns.
- To understand the relationship between the real and reciprocal space and learn the Bragg's X-ray diffraction in crystals.
- To gain knowledge about various theory of specific heat of solids and their outcomes.

Quantum Mechanics (PHY-502), Course Outcomes

- To understand the various experimental techniques to realize dual nature of light and matter and its applications to solve problems.
- To understand the nature of light - particle and wave nature of light on the basis of interference, diffraction, polarization, photoelectric effect, Compton effect.
- Get basic ideas of quantum mechanics to solve fundamental problems in quantum mechanics.
- Understand the theory of Schrodinger equations and their applications.

Atomic, Molecular and Laser Physics (PHY-601), Course Outcomes

- To understand the basic concepts of spectroscopic principles and rules. Students would learn technique in spectroscopy and know about their applications.

- Beneficial for the students to explore R & D opportunities in various areas of science and technology such as biomedical, industrial and environmental fields.
- To understand the theory of lasing and the construction and working of solid state lasers, gas lasers and semiconductor lasers.

Nuclear Physics (PHY-602), Course Outcomes

- To understand the structure of nucleus, various properties and their measurements and to study different nuclear models.
- Expands the knowledge of students especially, the various applications of nuclear physics.
- To study transformations of nuclei and the phenomenon of radioactivity, nuclear transformations leading to fission, fusion and the design of nuclear reactors.
- To study the purpose and design of radiation detectors and particle accelerators.
- To gain knowledge about alpha, beta and gamma ray and their decay.
- Open the door to carry out research in the field of nuclear physics, high energy physics, nuclear astrophysics, nuclear reactions and applied nuclear physics.