

Course Outcome

Course: B. Sc. Physics

Core Papers:

PHSGCOR01T : Mechanics : The students would learn about the behaviour of physical bodies it provides the basic concepts related to the motion of all the objects around us in our daily life. The course builds a foundation of various applied field in science and technology; especially in the field of mechanical engineering. The course comprises of the study vectors, laws of motion, momentum, energy, rotational motion, gravitation, fluids, elasticity and special relativity.

PHSGCOR01P : Mechanics Lab :Students would perform basic experiments related to mechanics and also get familiar with various measuring instruments would learn the importance of accuracy of measurements.

PHSGCOR02T : Electricity and Magnetism : It gives an opportunity for the students to learn about one of the fundamental interactions of electricity and magnetism, both as separate phenomena and as a singular electromagnetic force. The course contains vector analysis, electrostatics, magnetism, electromagnetic induction and Maxwell's equations. The course is very useful for the students in almost every branch of science and engineering.

PHSGCOR02P : Electricity and Magnetism Lab :Students would gain practical knowledge about electricity and magnetism and measurements such as: Resistance, Voltage, current etc.

PHSGCOR03T : Thermal Physics and Statistical Mechanics :The course makes the students able to understand the basic physics of heat and temperature and their relation with energy, work, radiation and matter. The students also learn how laws of thermodynamics are used in a heat engine to transform heat into work. The course contains the study of laws of thermodynamics, thermodynamic description of systems, thermodynamic potentials, kinetic theory of gases, theory of radiation and statistical mechanics.

PHSGCOR03P : Thermal Physics and Statistical Mechanics Lab :Students would gain practical knowledge about heat and radiation, thermodynamics, thermo emf , RTD etc. and perform various experiments.

PHSGCOR04T : : Wave and Optics :The course comprises of the study of superposition of harmonic oscillations, waves motion (general), oscillators, sound, wave optics, interference, diffraction, polarization. The course is important for the students to make their career in various branches of science and engineering, especially in the field of photonic engineering.

PHSGCOR04P : Wave and Optics Lab : The practical knowledge of wave motion doing experiments: Tuning fork, electric vibrations. They would also learn optical phenomena such as interference, diffraction and dispersion and do experiments related to optical devices: Prism, grating, spectrometers.

PHSGDSE01T : Digital, Analog Circuits and Instrumentation : The students would gain the knowledge of Basic Electronics circuits, network theorems and measuring instruments: They would know about common solid state devices: Semiconductor diodes and transistors. The topics also include the Rectifiers, Filters and their applications, number systems and logic gates which are foundation blocks of digital electronics.

PHSGDSE01P : Digital, Analog Circuits and Instrumentation Lab: In this course students would be able to understand Basic experiments of Digital, Analog Circuits and Instrumentation like Logic Gates, Half Adder, Full Adder, Op-Amp 741, Multivibrator, Wien Bridge Oscillator etc.

PHSGDSE02T :Perspectives of Modern Physics:Students would know about the basic principles in the development of modern physics. The topics covered in the course build a basic foundation of undergraduate physics students to study the advance branches: quantum physics, nuclear physics, particle physics and high energy physics. The course contains the study of Planck's hypothesis, photoelectric effect, Compton effect, matter waves, atomic models, Schrodinger wave equations, and brief idea of nuclear physics.

PHSGDSE02P :Perspectives of Modern Physics Lab : In this course students would be able to understand Basic experiments of modern physics such as: Determination of Plank's and Boltzmann's constants, Determination of ionization potential, Wavelength of H-spectrum, Single and double slit diffraction, Photo electric effect and determination of e/m .

PHSGDSE03T : Solid State Physics:Students would be able to understand various types of crystal structures and symmetries and understand the relationship between the real and reciprocal space and learn the Bragg's X-ray diffraction in crystals. Would also learn about phonons and lattice.

PHSGDSE03P : Solid State Physics Lab :The course Provides practical knowledge of various physical phenomena such as: magnetism, dielectrics, ferroelectrics and semiconductors. Students would gain a hands-on learning experience by performing experiments on these properties of materials.

PHSGDSE04T : Nuclear and Particle Physics :Understand the ideas of basics of nucleus and their energy, the procedures for nuclear fission and fusion the properties of positive rays, experimental proof by frank and hertz method, the relationship between various types of couplings, basic understanding of nuclear properties and models that describe the quantum structure, decay, and reactions of nuclei, basic knowledge about the Standard Model of elementary particles and interactions.