B.Sc. Physics (General) CBCS

TABLE: COURSE OUTCOME FOR SEMESTER 1st to 6th

SEMESTER	COURSE CODE	COURSE NAME	COURSE OUTCOME
1st SEMESTER	PHY-RC-1016 (PHY-HG-1016)	Mechanics	Upon completion, students are expected to- ➢ Understand the role of vectors and coordinate systems in Physics. ➢ Solve Ordinary Differential Equations, laws of motion and their applications. ➢ Understand the concept of conservation of energy, momentum, angular momentum and apply them to basic problems. ➢ Understand the phenomenon of simple harmonic motion, motion under central force, concept of time dilation and length contraction using special theory of relativity.

2nd SEMESTER	**PHY-RC-2016 (PHY-HG-2016)**	**Electricity and Magnetism**	Upon completion of this course, students are expected to- ➢ Apply Gauss's law of electrostatics to solve a variety of problems. ➢ Calculate the magnetic forces that act on moving charges and the magnetic fields due to currents. ➢ Have a brief idea of magnetic materials, understand the concepts of induction and apply them to a variety of problems. ➢ In the laboratory course, students will be able to measure resistance (high and low), voltage, current, self and mutual inductance, capacitor, strength of magnetic field and its variation, study of different circuits RC, LCR etc.
3rd SEMESTER	**PHY-RC-3016 (PHY-HG-3016)**	**Thermal Physics and Statistical Mechanics**	Upon completion of this course, students are expected to- ➢ Learn basic concepts of thermodynamics, the 1st and 2nd law of thermodynamics, concept of entropy a

			➢ Students will also learn Maxwell's thermodynamic relations, fundamentals of the kinetic theory of gases, Maxwell-Boltzmann distribution law, equipartition of energies, mean free path of molecular collisions, viscosity, thermal conductivity, diffusion of Brownian motion, black body radiations, Stefan-Boltzmann's law, Rayleigh-Jean's law and Planck's law and their significances, quantum statistical distributions, viz., the Bose-Einstein statistics and the Fermi-Dirac Statistics. ➢ In the laboratory course, the students will be able to measure Plank's constant using black body radiation, determine Stefan's Constant, coefficient of thermal conductivity of a bad and a good conductor etc.
4th SEMESTER	**PHY-RC-4016** **(PHY-HG-4016)**	**Waves and Optics**	Upon completion of this course, students are expected to understand- ➢ Simple harmonic oscillations and superposition principle, importance of classical wave equation in transverse and longitudinal waves and solving a range of physical systems on its basis, concept of normal modes in transverse and longitudinal waves: their

			frequencies and configurations, interference as superposition of waves from coherent sources derived from same parent source.
			➢ Demonstrate understanding of Interference a nd diffraction experiments, Polarization.
			➢ In the laboratory course, students will gain hands- on experience of using various optical instruments and making finer measurements of wavelength of light using Newton Rings experiment, Fres nel Biprism etc.
			➢ They will also learn about the resolving power of optical equipment, the motion of coupled oscillators, and study of Lissajous figures and behavior of transverse and longitudinal waves.

5th SEMESTER	PHY-HE-5056	**Nuclear and Particle Physics**	Upon completion of this course, students will be expected to- ➢ Have an understanding of the sub atomic particles and their properties. ➢ They will gain knowledge about the different nuclear techniques and their applications in different branches of Physics and societal applications. ➢ The course will develop problem based skills and the fields of Physics and Chemistry.

6th SEMESTER	PHY-HE-6016	**Astronomy and Astrophysics**	Upon completion of this course, students will be able to- ➢ Understand the origin and evolution of the universe. ➢ The students will be given a comprehensive introduction on the measurement of basic astronomical parameters such as astronomical scales, luminosity and astronomical quantities. ➢ It will give an overview on key developments in observational astrophysics. ➢ Students will have the idea of the instruments implemented for astronomical observations, the formation of plenary system and its evolution with time, the physical properties of sun and the components of the solar system; the stellar and interstellar components of our Milky Way galaxy. ➢ Students will have the understanding of the origin and evolution of galaxies, presence of dark matter and large scale structures of the Universe.