



DEPARTMENT OF PHYSICS
UG PHYSICS NEP PO, PSO & CO'S
B.Sc PHYSICS

PROGRAMME OUT COME	PO1: Disciplinary knowledge PO2: Communication Skills PO3: Critical thinking, Reflective thinking, Analytical reasoning, Scientific reasoning PO4: Problem-solving PO5: Research-related skills PO6: Cooperation/ Teamwork/ Leadership readiness/Qualities PO7: Information/ Digital literacy/Modern Tool Usage PO8:Environment and Sustainability PO9: Multicultural competence PO10: Multi-Disciplinary PO11: Moral and ethical awareness/Reasoning PO12: Lifelong learning / Self Directed Learning
PROGRAMME SPECIFIC OUTCOME	Successful completion of B.Sc. Physics Course student will be able to PSO1: Understand the depth knowledge of various topics of Physics, Demonstrate skills and competencies to conduct wide range of scientific experiments. PSO2:Accumulate the facts of nature and the ability to link the facts to observe and discover the laws of nature i.e. develop an understanding and knowledge of the basic Physics. PSO3:Ability to employ critical thinking and efficient problem solving skills in all the basic areas of the subject. PSO4:Develop the ability to apply the knowledge acquired in the classroom and laboratories to specific problems in theoretical and experimental Physics PSO5:Motivate students to pursue PG courses in reputed institutes, Identify their area of interest in academic and Research & Development,

	PSO6:Identify the specific job that they can pursue with the skills developed through the course of physics, PSO7:Demonstrate Professional behaviour with respect to attribute like objectivity, ethical values, self reading, etc..
COURSE OUTCOMES	
Phy-101T and Phy-102P MECHANICS AND PROPERTIES OF MATTER	CO1: Fixing units, tabulation of observations, analysis of data (graphical/analytical) CO2: Accuracy of measurement and sources of errors, importance of significant figures CO3: Knowledge of how g can be determined experimentally and derive satisfaction.. CO4: Understanding the difference between simple and torsional pendulum and their use in the determination of various physical parameters CO5: Knowledge of how various elastic moduli can be determined CO6: Measuring surface tension and viscosity and appreciate the methods adopted CO7: Hands on experience of different equipment.
Phy-201T and Phy-202P ELECTRICITY AND MAGNETISM	CO1: Demonstrate Gauss law, Coulomb's law for the electric field, and apply it to systems of point charges as well as line, surface, and volume distributions of charges. CO2: Explain and differentiate the vector (electric fields, Coulomb's law) and scalar (electric potential, electric potential energy) formalisms of electrostatics CO3: Apply Gauss's law of electrostatics to solve a variety of problems. CO4: Describe the magnetic field produced by magnetic dipoles and electric currents. CO5: Explain Faraday-Lenz and Maxwell laws to articulate the relationship between electric and magnetic fields. CO6: Describe how magnetism is produced and list examples where its effects are observed. CO7: Apply Kirchhoff's rules to analyze AC circuits consisting of parallel and/or series combinations of voltage sources and resistors and to describe the graphical relationship of resistance, capacitor and inductor CO8: Apply various network theorems such as Superposition, Thevenin, Norton,

	Reciprocity, • Maximum Power Transfer, etc. and their applications in electronics, electrical circuit analysis, and electrical machines
Phy-301T and Phy-302P WAVE MOTION AND OPTICS	CO1: Identify different types of waves by looking into their characteristics. CO2: Formulate a wave equation and obtain the expression for different parameters associated with waves. CO3: Explain and give a mathematical treatment of the superposition of waves under different conditions, such as, when they overlap linearly and perpendicularly with equal or different frequencies and equal or different phases CO4: Describe the formation of standing waves and how the energy is transferred along the standing wave in different applications, and mathematically model in the case of stretched string and vibration of a rod. CO5: Give an analytical treatment of resonance in the case of open and closed pipes in general and Helmholtz resonators in particular. CO6: Describe the different parameters that affect the acoustics in a building, measure it and control it. CO7: Give the different models of light propagation and phenomenon associated and measure the parameters like the wavelength of light using experiments like Michelson interferometer, interference and thin films CO8: Explain diffraction due to different objects like singles slit, two slits, diffraction of grating, oblique incidence, circular aperture and give the theory and experimental setup for the same. CO9: Explain the polarization of light and obtain how the polarization occurs due to quarter wave plates, half wave plates, and through theoretical activity of a medium
Phy-401T and Phy-402P THERMAL PHYSICS AND ELECTRONICS	CO1: Apply the laws of thermodynamics and analyze the thermal system. CO2: Apply the laws of kinetic theory and radiation laws to the ideal and practical thermodynamics systems through derived thermodynamic relations CO3: Use the concepts of semiconductors to describe different Semiconductor devices such as diode transistors, BJT, FET etc and explain their functioning. CO4: Explain the functioning of OP-AMPS and use them as the building blocks of logic gates. CO5: Give the use of logic gates using different theorems of Boolean Algebra followed by logic circuits.