

B.SC PHYSICS

COURSE OUTCOME

No	Course code And Nature of course	Course title	Course outcome and objectives
1	PHY1B01 (Core)	MECHANICS – I	<ul style="list-style-type: none"> Understand and apply the basic concepts of Newtonian Mechanics to Physical Systems Understand and apply the basic idea of work-energy theorem to physical systems Understand and apply the rotational dynamics of rigid bodies Understand the features of non-inertial systems and fictitious forces
2	PHY2B02 (Core)	MECHANICS- II	<ul style="list-style-type: none"> Understand and analyses the features of central forces with respect to planetary forces Understand the basic ideas of Harmonic Oscillations Understand the analyses the basic concepts of wave motion
3	PHY3B03 (Core)	ELECTRODYNAMICS I	<ul style="list-style-type: none"> Understand and apply the fundamentals of vector calculus Understand and analyses the electrostatic properties of physical systems Understand the mechanism of electric field in matter. Understand and analyses the magnetic properties of physical systems Understand the mechanism of magnetic field in matter.
4	PHY4B04 (Core)	ELECTRODYNAMICS II	<ul style="list-style-type: none"> Understand the basic concepts of Electrodynamics Understand and analyse the properties of electromagnetic waves Understand the behaviour of transient Currents Understand the basic aspects of ac circuits Understand and apply electrical network theorems
5	PHY5B06 (Core)	COMPUTATIONAL PHYSICS	<ul style="list-style-type: none"> Understand the Basics of Python Programming Understand the applications of Python Modules Understand the basic techniques of numerical analysis Understand and apply computational techniques to physical problems
6	PHY5B07 (Core)	QUANTUM MECHANICS	<ul style="list-style-type: none"> Understand the particle properties of electromagnetic radiation Describe Rutherford – Bohr model of the atom Understand the wavelike properties of Particles Understand and apply the Schrödinger equation to simple physical systems Apply the principles of wave mechanics to the Hydrogen atom
7	PHY5B08 (Core)	OPTICS	<ul style="list-style-type: none"> Understand the fundamentals of Fermat's principles and geometrical optics Understand and apply the basic ideas of interference of light Understand and apply the basic ideas of diffraction of light Understand the basics ideas of polarization of light Describe the basic principles of holography and fibre optics
8	PHY5B09 (Core)	ELECTRONICS (ANALOG & DIGITAL)	<ul style="list-style-type: none"> Understand the basic principles of rectifiers and dc power supplies Understand the principles of transistor Understand the working and designing of transistor amplifiers and oscillators Understand the basic operation of Op –Amp and its Applications Understand the basics of digital electronics

9	PHY6B10 (Core)	THERMODYNAMICS	<ul style="list-style-type: none"> • Understand the zero and first laws of Thermodynamics • Understand the thermodynamics description of the ideal gas • Understand the second law of thermodynamics and its applications • Understand the basic ideas of entropy • Understand the concepts of thermodynamic potentials and phase transitions
10	PHY6B11 (Core)	STATISTICAL PHYSICS, SOLID STATE PHYSICS, SPECTROSCOPY & PHOTONICS	<ul style="list-style-type: none"> • Understand the basic principles of statistical physics and its applications • Understand the basic aspects of crystallography in solid state physics • Understand the basic elements of Spectroscopy • Understand the basics ideas of microwave and infrared spectroscopy • Understand the fundamental ideas of photonics
11	PHY6B12 (Core)	NUCLEAR PHYSICS AND PARTICLE PHYSICS	<ul style="list-style-type: none"> • Understand the basic aspects of nuclear structure and fundamentals of radioactivity • Describe the different types of nuclear reactions and their applications • Understand the principle and working of particle detectors • Describe the principle and working of particle accelerators • Understand the basic principles of elementary particle physics
12	PHY6B13	RELATIVISTIC MECHANICS AND ASTROPHYSICS	<ul style="list-style-type: none"> • Understand the fundamental ideas of special relativity • Understand the basic concepts of general relativity and cosmology • Understand the basic techniques used in astronomy • Describe the evolution and death of stars • Describe the structure and classification of galaxies
13	PHY4B05	PRACTICAL I	<ul style="list-style-type: none"> • Apply and illustrate the concepts of properties of matter through experiments • Apply and illustrate the concepts of electricity and magnetism through experiments • Apply and illustrate the concepts of optics through experiments • Apply and illustrate the principles of electronics through experiments
14	PHY6B15	PRACTICAL II	<ul style="list-style-type: none"> • Apply and illustrate the concepts of properties of matter through experiments • Apply and illustrate the concepts of electricity and magnetism through experiments • Apply and illustrate the concepts of optics and spectroscopy through experiments • Apply and illustrate the principles of heat through experiments
15	PHY6B16	PRACTICAL III	<ul style="list-style-type: none"> • Apply and illustrate the principles of semiconductor diode and transistor through experiments • Apply and illustrate the principles of transistor amplifier and oscillator through experiments • Apply and illustrate the principles of digital electronics through experiments • Analyse and apply computational techniques in Python programming

16	PHY6B17(P)	PROJECT	<ul style="list-style-type: none"> • Understand research methodology • Understand and formulate a research Project • Design and implement a research project • Identify and enumerate the scope and limitations of a research project
17	PHY5D01(1)	NON CONVENTIONAL ENERGY SOURCES	<ul style="list-style-type: none"> • Understand the importance of non-conventional energy sources • Understand basic aspects of solar energy • Understand basic principles of wind energy Conversion • Understand the basic ideas of geothermal and biomass energy and recognize their merits and demerits • Understand the basic ideas of oceans and chemical energy resources and recognize their merits and demerits
18	PHY5D01(2)	AMATEUR ASTRONOMY AND ASTROPHYSICS	<ul style="list-style-type: none"> • Describe the history and nature of astronomy as a science • Understand the motion of earth in space and the cause of seasons • Understand the basic elements of solar System • Understand the elementary concepts of solar system
19	PHY5D01(3)	ELEMENTARY MEDICAL PHYSICS	<ul style="list-style-type: none"> • Understand the basic aspects of physics of nuclear medicine • Recognize different bioelectric signals and their instrumentation • Understand the basic elements of X-ray Imaging • Understand the basic elements of ultrasound imaging and its advantages and disadvantages