Semester – I				
Course Code 22BPH1C1	**Core Course-1**	**T/P**	**C**	**H/W**
	MECHANICS AND PROPERTIES OF MATTER	**T**	**5**	**5**
Objectives	➢ To express the concept of centre of gravity along with its effect on the stability of the objects and also to study the centre of gravity of different systems in real life ➢ To study the laws of gravitation, mass, density and acceleration due to gravity of earth and gravitational field ➢ To understand the properties of elastic bodies and to evaluate the elastic constants of materials ➢ To explain the phenomena of viscosity, surface tension and its utility in fluid dynamics with an understanding of their needs in day-to-day life.			
outcomes	➢ The students will be able to know about the concept of moment of inertia of the rigid bodies ➢ The students gain knowledge on gravity and variation of acceleration due to gravity at different location ➢ The students will be able to know concepts of angular velocity, angular momentum, kinetic energy of rotating body and motion of the rocket with basic principle ➢ The student will be able to identify the materials suitable for constructing buildings, based on the moduli of elasticity. ➢ The students gain knowledge on properties of liquids and its determination			

Semester – I				
Course Code 22BPH1P1	**Core Practical-1**	**T/P**	**C**	**H/W**
	GENERAL PHYSICS PRACTICAL - I	**P**	**4**	**4**
Objectives	➢ To determine the Young's modulus and Rigidity modulus of the materials using various methods ➢ To compare the viscosities of the given two liquid ➢ To verify the law of transverse vibrations of a stretched string ➢ To determine the specific heat capacity of liquids by heating and cooling process ➢ To carry out the experiments to calculate thermo emf., thermal conductivity and specific heat capacity ➢ To perform optical experiments, to determine the refractive index and dispersive power			
Outcomes	➢ The students will be able to determine the Young's modulus, Rigidity modulus of the materials using various methods, compare the viscosities of the given two liquid, verify the law of transverse vibrations of a stretched string, determine the specific heat capacity of liquid, determine the refractive index and dispersive power .			

Semester – II				
Course Code 22BPH2C1	**Core Course-2**	**T/P**	**C**	**H/W**
	ELECTRICITY AND ELECTROMAGNETISM	**T**	**5**	**5**
Objectives	➢ To provide comprehensive knowledge and understanding the basics of electricity and electromagnetism ➢ To expose the students to the effects of heat, chemical on electric current ➢ To understand the concepts of self induction, mutual induction, Faraday's law and Lenz's laws.			
outcomes	➢ The students will be able to understand the fundamental laws of electricity and electromagnetism, identify the chemical, thermal and magnetic effects of electric current, and analyses and solve electrical circuits with dc and ac source ➢ To understand electromagnetic induction and different types of ac and dc circuits ➢ The student gain knowledge of electromagnetic waves and their propagation.			

Semester – II				
Course Code 22BPH2P1	**Core Practical-2**	**T/P**	**C**	**H/W**
	GENERAL PHYSICS PRACTICAL-II	**P**	**4**	**4**
Objectives	➢ To determine the Young's modulus and rigidity modulus of the materials using various methods ➢ To determine the acceleration due to gravity a place using different methods ➢ To find the viscosities of the given two liquid ➢ To verify the law of transverse vibrations of a stretched string ➢ To find the frequency of the alternating current supplied to our area ➢ To perform optical experiments to determine the refractive index and dispersive power			
Outcomes	➢ The students will be able to determine the Young's modulus and rigidity modulus of the materials, determine the acceleration due to gravity a place, find the viscosities of the given two liquid, verify the law of transverse vibrations of a stretched string, find the frequency of the alternating current, the refractive index and dispersive power			

Semester – III				
Course Code 22BPH3C1	**Core Course-3**	**T/P**	**C**	**H/W**
	HEAT AND THERMODYNAMICS	**T**	**3**	**3**
Objectives	➢ To elaborate, the basic principles of heat and its transformation process ➢ To explore the idea of lowering the temperature ➢ To understand the concept of entropy ➢ To understand the kinetic theory of gases			
Outcomes	➢ The student will be able to learn the transmission of heat by the various process by studying experiments ➢ The students gain knowledge of the laws of thermodynamics and their applications ➢ The students will be motivated to carry out research in Heat and Thermodynamics and its related fields			

Semester – III				
Course Code 22BPH3C2	**Core Course-4**	**T/P**	**C**	**H/W**
	OPTICS	**T**	**3**	**3**
Objectives	➢ To understand the various types of aberrations in the lenses and prisms and their elimination process ➢ To elaborate the concept of dispersion, dispersive power and the formation of rainbows ➢ To study the basic concepts of interference, diffraction and polarization and the various applications			
Outcomes	➢ The students understand the principles of geometric optics, which helps in the practical design of many optical systems and instruments ➢ The students will be able to understand the interference, diffraction, and polarization phenomena, laying the foundation for understanding concepts such as holograms and interferometers. ➢ The students will know the concept of polarization, which helps to find the optical activity of substances and their rotatory power.			

Semester – III				
Course Code 22BPH3P1	**Core Practical-3**	**T/P**	**C**	**H/W**
	GENERAL PHYSICS PRACTICAL - III	**P**	**3**	**3**
Objectives	➢ To carry out the experiments, to calculate thermo emf, thermal conductivity and specific heat capacity ➢ To construct the electrical circuits to measure voltage to calibrate voltmeter ➢ To find the resistance and temperature coefficient of the given wire ➢ To find the surface tension of the given liquid ➢ To find the thickness of a thin wire by forming interference frings in the wedge shaped air film			
Outcomes	➢ The students gain knowledge to calculate and determine thermo emf, thermal conductivity, Specific heat capacity, constructing electrical circuits to measure voltage to calibrate voltmeter, the resistance and temperature coefficient of the given material, the surface tension of the given liquid, and to find the thickness of a thin wire by forming interference fringes			

Semester – IV				
Course Code 22BPH4C1	**Core Course-5**	**T/P**	**C**	**H/W**
	ATOMIC PHYSICS	**T**	**4**	**4**
Objectives	➢ To study about the properties of positive rays and photo electric effect and its applications ➢ To understand the evolution of different atomic models and their merits and limitations ➢ To know the effect of application of magnetic and electric fields on atomic spectra and X-rays.			
Outcomes	➢ The students will be able to understand the evolution of different atomic models and their merit and limitations ➢ The students will gain adequate knowledge of the fundamental principles governing the structure of the atom and the interactions ➢ The students will gain sufficient expertise in atomic physics to follow courses at the advanced level			

Semester – IV				
Course Code 22BPH4C2	**Core Course-6**	**T/P**	**C**	**H/W**
	NUCLEAR PHYSICS	**T**	**4**	**4**
Objectives	➢ To acquire the knowledge of fundamental Nuclear properties and apply the concepts to calculate various parameters of the nucleus ➢ To understand the theoretical concepts of nuclear models ➢ To elaborate the working of nuclear reactors and their application in daily life. ➢ To study how to detect nuclear radiation and accelerate particles			
Outcomes	➢ The students will be able to understand the basics of nuclear physics ➢ The students gain knowledge about particle-antiparticle, decay processes and the working of particle accelerators and detectors ➢ The students will be able to learn about the primary interaction between fundamental particles			

Semester – IV				
Course Code 22BPH4P1	**Core Practical-4**	**T/P**	**C**	**H/W**
	GENERAL PHYSICS PRACTICAL - IV	**P**	**3**	**3**
Objectives	➢ To construct the electrical circuits to measure current and voltages to calibrate ammeter, high range voltmeter, and to determine the unknown resistance ➢ To carry out the experiments to calculate thermo emf, thermal conductivity and Specific heat capacity ➢ To determine the wavelength of the most prominent lines in the mercury spectrum by the angle of diffraction ➢ To find the radius of curvature of the lens and wavelength of the given source by forming interference pattern			
Outcomes	➢ The students will be able to construct the electrical circuits to measure current, and voltages, calibrate the ammeter, and high range voltmeter, determine the value of the given resistance and calculate the thermo emf, thermal conductivity, and Specific heat capacity. He will be also able to determine the wavelength of the most prominent lines in the mercury spectrum and find the radius of curvature of the lens and wavelength			

Semester – V				
Course Code 22BPH5C1	**Core Course-7**	**T/P**	**C**	**H/W**
	ANALOG ELECTRONICS	**T**	**4**	**4**
Objectives	➢ To impart basic knowledge on semiconductor and their applications ➢ To understand the concepts for solving real-time problems related to electronic circuits ➢ To develop the ability to design and analyse the circuit containing diode, transistor and operational amplifiers ➢ To elaborate on the basics of special types of semiconductor devices			
Outcomes	➢ The students will familiarize themselves with network theorems like Thevenin's theorem, Norton's theorem etc., ➢ The students gain knowledge about the working principle of semiconducting devices such as p-n junctions, Zener diodes, Transistors, UJT, FET, SCR and working mechanism ➢ The students will be able to understand the working of amplifiers, oscillators, multivibrators and operational amplifiers			

Semester – V				
Course Code 22BPH5C2	**Core Course-8**	**T/P**	**C**	**H/W**
	COMPUTER PROGRAMMING IN C	**T**	**4**	**4**
Objectives	➢ To introduce a computer language for solving scientific problems ➢ To elaborate on different data types, such as simple variables, strings and arrays ➢ To familiarize students with writing programs using functions and pointers			
Outcomes	➢ The students will be able to acquire skills in writing his program for simple problems in general, Physics in particular ➢ The students will get the self-confidence to self-learning any other programming languages and use them to solve numerical problems ➢ Enhancing student's chance in the job haunt			

Semester – V				
Course Code 22BPH5C3	**Core Course-9**	**T/P**	**C**	**H/W**
	CLASSICAL AND STATISTICAL MECHANICS	**T**	**4**	**4**
Objectives	➢ To explain the basic principle of properties in Classical Mechanics and Statistical Physics ➢ To learn the Lagrangian and Hamiltonian and their applications ➢ To study the concept of statistics of molecules			
Outcomes	➢ The students will be able to understand the usage of Lagrangian and Hamiltonian Mechanics ➢ The students gain knowledge to apply the principles of Statistical Mechanics to solve the system of molecules and atoms			

Semester – V				
Course Code 22BPH5C4	**Core Course-10**	**T/P**	**C**	**H/W**
	SOLID STATE PHYSICS	**T**	**4**	**4**
Objectives	➢ To understand the different types of bonding in solids ➢ To understand the magnetic and dielectric properties of crystalline structures ➢ To acquire knowledge of the basics of magnetic phenomena on materials and various types of magnetization. ➢ To know the properties of superconducting materials.			
Outcomes	➢ The students will be able to understand the inter-atomic forces and bonds between solids ➢ The students will be able to understand the behavior of solids with their magnetic properties ➢ The students gain knowledge about the superconducting materials			

Semester – V				
Course Code 22BPH5P1	**Core Practical-5**	**T/P**	**C**	**H/W**
	GENERAL PHYSICS PRACTICAL - V	**P**	**4**	**6**
Objectives	➢ To find the resonance frequency of series and parallel LCR circuits ➢ To determine the wavelength of most prominent lines in the mercury spectrum by angle of diffraction ➢ To understand the concept and determination of self inductance ➢ To know how run and execute a C program in the computer ➢ To compare the given capacitances, voltages and resistors			

Outcomes	➢ The students will be able to know about resonance frequency and its determination of LCR circuits ➢ The students will be able to determine the wavelength of most prominent lines in the mercury spectrum by angle of diffraction using grating ➢ The students will be able to understand the concept and determination of self inductance ➢ The students will be able to run and execute C programs in the computer

Semester – V				
Course Code 22BPH5P2	**Core Practical-6**	**T/P**	**C**	**H/W**
	GENERAL PHYSICS PRACTICAL -VI	**P**	**4**	**6**
Objectives	➢ To study the characteristics of semiconducting devices and its application ➢ To know how to construct a power supplies, amplifiers and oscillators by various methods ➢ To understand the basic concept adding, subtracting, multiplication and division are done using integrated circuit			
Outcomes	➢ The students will be able to understand the characteristics and usage of diodes, transistor. ➢ They will be able to design and construct power supplies, amplifiers and oscillators ➢ The students will be able to understand of concept of addition, subtraction, multiplication and division through logic circuits. He will also able to understand, working of flip flops, multivibrator using integrated circuits.			

Semester – VI				
Course Code 22BPH6E1	**DSE-1**	**T/P**	**C**	**H/W**
	INTEGRATED ELECTRONICS	**T**	**6**	**6**
Objectives	➢ To know various number systems and conversion from one type to other ➢ To understand the fundamental concepts of logic gates, counters, registers, etc. ➢ To understand the process of encoding and decoding in electronic circuits ➢ To exhibit proficiency in the basic concepts of circuit analysis involving timer integrated circuits			
Outcomes	➢ The students will be able to know how primitives of Boolean algebra are used to describe the processing of digital signals. ➢ The students gain knowledge in designing and analyzing the electronic circuits ➢ The students can analyze, design and implement combinational logic circuits			

Semester – VI				
Course Code 22BPH6E2	**DSE-2**	**T/P**	**C**	**H/W**
	RELATIVITY AND QUANTUM MECHANICS	**T**	**6**	**6**
Objectives	➢ The aim of this course is to acquire sufficient knowledge in the field of Relativity ➢ To introduce the concept of the dual nature of matter and radiation ➢ To introduce Quantum Mechanics, the Schrodinger equation and its applications and Operator formalism			

Outcomes	➢ The students will be able to gain knowledge in the field of the special theory of relativity ➢ The student will understand the ideas of the dual nature of matter and radiation ➢ The students acquire knowledge in Quantum Mechanics and operator mechanism ➢ The student will be able to apply Schrödinger's equation to different problems and able to find the solution

Semester – VI				
Course Code 22BPH6E3	**DSE-3**	**T/P**	**C**	**H/W**
	NANOPHYSICS	**T**	**6**	**6**
Objectives	➢ To introduce the concept of Nano materials ➢ To understand the basics of Nanomaterials, Classification and their properties ➢ To discuss the various types of quantum materials, Nanotubes and nanostructures. ➢ To describe the applications of nanomaterials in various fields			
Outcomes	➢ The students will be able to understand the concept of nanomaterials and their advantages. ➢ The students familiarize themselves with the preparation of nanomaterials through various processes ➢ The students get an idea about SEM, TEM and EDAX			

Semester – VI				
Course Code 22BPH6E4	**DSE-4**	**T/P**	**C**	**H/W**
	LASER PHYSICS AND FIBRE OPTICS	**T**	**6**	**6**
Objectives	➢ To introduce principles of LASER operation and their applications ➢ To introduce the basic concepts of optical fibre and optical fibre communication system ➢ To elaborate on the usage of LASER in Fibres			
Outcomes	➢ The students gain knowledge about LASER production ➢ The students familiarize themselves with the usage of LASER in the industry and medical field ➢ The students will be able to understand the concept of optical fibre and the transmission of data using fibres			

Semester – VI				
Course Code 22BPH6PR	**DSE-5**	**T/P**	**C**	**H/W**
	PROJECT		**6**	**10**
Objective	➢ To introduce the basic idea of doing a project ➢ To increase the creativity of the students ➢ Make the students to think and enhance the depth of the subject knowledge			
Outcomes	➢ The students will be able to get basic idea of doing project and increases his depth of subject knowledge by doing experiments			