FATIMA COLLEGE (AUTONOMOUS),MADURAI–625018

COURSE OUTCOMES

NAME OF THE PROGRAMME: **BSC PHYSICS**   **PROGRAMME CODE: UAPH**

COURSE CODE	COURSE TITLE	COURSEOUTCOMES
19P1CC1	MECHNANICS AND PROPERTIES OF MATTER	CO 1: Explain gravitational force, gravitational field, gravitational potential and gravitational energy. CO 2: Analyze the variation of 'g' with latitude, altitude, depth and rotation of earth and Identify the types of satellite orbits and compute the parameters of satellite motion. CO 3: Discuss the elastic properties of materials and compute the Young's modulus of a beam. CO 4: Describe surface tension and capillarity property of liquids and identify its applications. CO 5: Explain the dynamics of fluid motion and its applications and analyse the viscose property of liquids.

19P1CC2	THERMAL PHYSICS	CO 1: Analyse a microscopic approach and seek to account for the macroscopic properties of a gas in terms of properties of its molecules. CO 2: Explain the classical Maxwell's distribution law of velocity and its inference. CO 3: Describe molecular collisions and its mean free path , understand the process of thermal conductivity, viscosity and diffusion in gases. CO 4: Depict the manner in which the energy changes takes place and outline the different methods to produce low temperature. CO 5: Demonstrate the liquefaction of gases and explain the nature of gases in the neighbourhood of absolute zero temperature.
19C1ACP1	ALLIED PHYSICS-I	CO 1: Define and discuss about the simple harmonic waves and its oscillations and laws of transverse vibrations of strings. CO 2: Classify and describe the properties of matter such as electricity, viscosity and surface tension. CO 3: Summarize the basic concepts of thermal physics and apply the laws of thermodynamics in higher learning concepts such as entropy and its reversible and irreversible process. CO 4: Explain the principles and laws used in electricity and magnetism those are useful in defining the energy of a capacitor and magnetic effect of electric current. CO 5: Demonstrate the properties of geometrical optics and explain the refraction and dispersion through a prism.

19P1NME1	PHYSICS IN EVERYDAY LIFE	CO 1: Discuss and illustrate the importance of paying attention to the basic units of physical quantities and the standards accepted for their measurement, describe the motion in terms of particle's position, velocity and acceleration and analyse the cause of motion. CO 2: Understand the concepts of heat, waves, sound, electricity, magnetism and explore their nature.
19B1ACP1	DIGITAL PRINCIPLES AND APPLICATIONS	CO 1: Define the different types of number systems and explain the basic and universal logic circuits. CO 2: Simplify the logic expressions using Boolean laws and Kmap. CO 3: Describe the principles behind the data processing and arithmetic circuits. CO 4: Explain the working of basic flipflops and design master slave flipflops. CO 5: Understand the working of shift registers and counters and describe D/A and A/D conversion techniques.
19P2CC4	OSCILLATIONS AND WAVES	CO 1: Describe simple harmonic motion and explain damped and forced oscillations. CO 2: Explain the Principle of superposition in sound waves. CO 3: Apply the same to interference, stationary waves and beats of sound waves. CO 4: Explain Doppler effect in sound and identify relative motion and solve problems. CO 5: Discuss ultrasonics and its applications & Outline the physics of voice generation and hearing.

19P2CC5	APPLIED MECHANICS	CO 1: Demonstrate an understanding of central forces and explain Kepler's laws of Planetary motion. CO 2: Compute the path of projectile launched with horizontal and vertical velocity components in the Earth's gravity. CO 3: Evaluate the interrelationship between energy and work. CO 4: Describe the motion of the center of mass of an object, state the conservation principles involving momentum and explore its applications, analyse collisions between two objects. CO 5: Apply law of conservation of angular momentum appropriately in rigid body rotations, relate the rotational and translational parameters based on rotational kinematics.
19C2ACP3	ALLIED PHYSICS-II	CO 1: Categorize and clarify the different optical phenomena of interference, diffraction, polarization. CO 2: Explain the atom model and calculate the total energy of an atom and account for the spectral series of hydrogen atom. CO 3: Elucidate the models of nuclear structure and to learn the principle behind atom bomb, nuclear reactors. CO 4: Summarize the working principle of p-n junction diode in forward and reverse biasing, it's V-I characteristics, the Zenor Diode, n-pn transistor in common emitter characteristics. CO 5: Classify the number system and demonstrate the skill in conversion of Number systems, Boolean algebra and its associated laws.

19P2NME2	PHYSICS IN EVERYDAY LIFE	CO 1: Discuss and illustrate the importance of paying attention to the basic units of physical quantities and the standards accepted for their measurement, describe the motion in terms of particle's position, velocity and acceleration and analyse the cause of motion. CO 2: Understand the concepts of heat, waves, sound, electricity, magnetism and explore their nature.
19P3CC7	ELECTROMAGNETISM	CO 1: Derive electric field for a distribution of charges by applying method of calculus. CO 2: Evaluate electric field for problems involving symmetry by using Gauss's law. CO 3: Estimate the magnetic field of a current using Biot Savarat law and Ampere's law CO 4: Describe the working of generators and motors based on Faraday's law of induction and Lenz law. Also, they will be able to classify magnetic materials based on magnetic dipole moments. CO 5: Comprehend Maxwell's equations and generation of electromagnetic waves.
19P3CC8	SOLID STATE PHYSICS	CO 1: Define the different parameters of crystal system and explain the basic concepts. CO 2: Describe the various magnetic behaviours of solids. CO 3: Explain the working of dielectric materials. CO 4: Understand the basic concepts in super conductivity. CO 5: Describe working and various applications of superconductors.

19M3ACP1& 19G3ACP1	ALLIED PHYSICS-I	CO 1: Define and discuss about the simple harmonic waves and its oscillations and laws of transverse vibrations of strings. CO 2: Classify and describe the properties of matter such as electricity, viscosity and surface tension. CO 3: Summarise the basic concepts of thermal physics and apply the laws of thermodynamics in higher learning concepts such as entropy and its reversible and irreversible process. CO 4: Explain the principles and laws used in electricity and magnetism those are useful in defining the energy of a capacitor and magnetic effect of electric current. CO 5: Demonstrate the properties of geometrical optics and explain the refraction and dispersion through a prism.
19P3SB1	BIOMECHANICS	CO 1: Acquire a skill to apply the laws of kinematics to biological systems. CO 2: Identify the anatomical pulleys and lever systems. CO 3: Access the types of levers in our body. CO 4: Explain how the biological machines inside our body. CO 5: Discuss different kinds of activities, equilibrium and stability of the body using Newton's law of physics.

19P4CC10	ANALOG ELECTRONICS	CO 1: Acquire basic knowledge of PN junction diode, different rectifiers and filters CO 2: Explain different transistor configuration and various biasing circuits CO 3: Obtain the knowledge of transistor amplifier and analyse using DC and AC load line CO 4: Elucidate the concept of feedback in amplifiers and design various types of oscillators CO 5: Describe the parameters of OP-AMP and to design OP-AMP circuits
19P4CC11	MATERIALS SCIENCE	CO 1: Explain the classical Maxwell's distribution law of velocity and its inference. CO 2: Determine electrical conductivity, thermal conductivity of conducting materials CO 3: Gain the knowledge of properties of various materials CO 4: Explain theory of various magnetic and superconducting materials CO 5: Identify new materials that find diverse applications.
19M4ACP3 & 19G4ACP3	ALLIED PHYSICS II	CO 1: Categorize and clarify the different optical phenomena of interference, diffraction, polarization. CO 2: Explain the atom model and calculate the total energy of an atom and account for the spectral series of hydrogen atom. CO 3: Elucidate the models of nuclear structure and to learn the principle behind atom bomb, nuclear reactors. CO 4: Summarise the working principle of p-n junction diode in forward and reverse biasing, it's V-I characteristics, the Zenor Diode, n-p-n transistor in common emitter characteristics. CO 5: Classify the number system and demonstrate the skill in conversion of Number systems, Boolean algebra and its associated laws.

| 19P4SB2 | PHYSICS OF STARS | CO 1: Explain the life cycle of stars.
CO 2: Discuss the spectral classification of stars.
CO 3: Explain the nuclear reactions taking place in stars.
CO 4: Distinguish between various mysterious objects of the universe like supernova, white dwarfs, pulsars, red giants, black holes.
CO 5: Explain classification of galaxies, red and blue shift of spectral lines |