

DEPARTMENT OF PHYSICS

COURSE OUTCOMES

SEMESTER - I

MECHANICS & PROPERTIES OF MATTER

CO#	Course Outcome
CO1	Describe the physical significance of gradient of scalar field, divergence and curl of vector field. Applications of Gauss's & Green's theorems. (K2)
CO2	Describe the working of multi stage rockets, collisions in 2D & 3D. concept of Rutherford's scattering experiment and its importance. (K2)
CO3	Apply Euler equations and Analyse of precessional velocity of symmetric top. (K3)(K4)
CO4	Demonstrate central force with examples. Verification of Kepler's laws, application to Planetary system. (K3)
CO5	Deduce the concepts of relativity, frame of reference, Lorentz transformations, length contraction and time dilation. (K4)

SEMESTER - II

WAVES & OSCILLATIONS

CO#	Course Outcome
CO1	Analysing the simple Harmonic Motion, characteristics. Determination of acceleration due to gravity 'g' by Compound pendulum & rigidity modulus by Torsion pendulum. (K5)
CO2	Apply the concept of damping to determine logarithmic decrement & quality factor. Differential equation of forced harmonic oscillator and its equation and applied in daily life. (K4)
CO3	Analyse the periodic functions like square wave, Saw tooth wave by using Fourier's theorem. (K5)
CO4	Basic understanding of Ultrasonics, different production methods and applications. (K4)

SEMESTER - III

THERMODYNAMICS & WAVE OPTICS

CO#	Course Outcome
C01	Describe the basic concepts of Thermodynamics and the kinetic theory of gases, transport phenomenon. (K2)
C02	Deduce the thermodynamic potentials and deriving the Maxwell's equations, and their application to different thermodynamic systems. (K4)
C03	Explain interference and its applications. (K3)
C04	Demonstrate the concept of aberrations, their importance in camera and other lens systems. (K3)

SEMESTER - IV

THERMODYNAMICS & RADIATION PHYSICS

CO#	Course Outcome
C01	Explain the concept of low temperature Physics and its applications. (K3)
C02	Determine different laws and formulae in Quantum theory of radiation and measurement of radiation by using different Pyrometers. (K3)
C03	Explain diffraction and basic understanding of Holography. (K3)
C04	Demonstrate the polarization and different methods of conversion of unpolarized light into polarized light. Basics of Fiber optics. (K3)

SEMESTER - V

ELECTRICITY, MAGNETISM & ELECTRONICS

CO#	Course Outcome
C01	Deduce Gauss's law and its applications of electrostatics & basics of dielectrics. (K4)
C02	Analyse the electric & magnetic fields and understand the Biot savart's law and apply it to long straight wire & solenoid. (K4)
C03	Define the basic laws of electricity and magnetism, deduce Maxwell equations and analyse the production of electromagnetic waves. (K1)(K4)
C04	Describe basic concepts of electronics, working of p-n junction diodes and analysis of transistor configurations. (K2)

SEMESTER - V

MODERN PHYSICS

CO#	Course Outcome
C01	Describe evolution of atomic models spectra of different elements, the effect of electric and magnetic field on the spectra. (K2)
C02	Describe properties of the nucleus and the models associated with it. (K2)
C03	Explain the theories behind the alpha and beta decays. Different detectors used to detect alpha, beta & gamma radiations. (K3)
C04	Describe the crystal structure and also experimental study of it. (K2)
C05	Explain the basic theories of superconductivity. (K3)

SEMESTER -VI

RENEWABLE ENERGY

CO#	Course Outcome
CO1	Demonstrate different forms of energy resources and its role in economic development. (K3)
CO2	Describe the effects of environmental degradation, global warming, nuclear power generation. (K2)
CO3	Correlate Solar, Wind, Ocean, Hydrogen energy conversions. (K4)
CO4	Analyse the conversion of bio mass into fuels, biomass plants types and design. (K4)

SOLAR THERMAL AND PHOTOVOLTAIC ASPECTS

CO#	Course Outcome
CO1	Explain basics of solar radiations and solar intensity measurements. (K2)
CO2	Classify design and performance parameters of concentrating collectors.(K4)(K6)
CO3	Analyze the fabrication of different types of solar cells. (K5)

WIND, HYDRO & OCEAN ENERGIES

CO#	Course Outcome
CO1	Describe wind generation, meteorology of wind and classify wind energy convertors. (K2)(K4)
CO2	Demonstrate construction and working of wind turbine and its characteristics. (K3)
CO3	Classify the technology process of Ocean, thermal and tidal energy conversion. (K4)

ENERGY STORAGE DEVICES

CO#	Course Outcome
C01	Analyse different modes of energy storage. (K4)
C02	Analyse different types of electro chemical energy storage systems. (K4)
C03	Demonstrate fuel cell components, principle and it's working. (K3)
C04	Classify different types of fuel cells and the problems with fuel cells and their applications. (K4)