

DEPARTMENT OF PHYSICS

Programme Outcomes & Programme Specific outcomes

Programme	Combination	Programme Outcomes	Programme Specific outcomes
B.Sc	MPCs	Possess a sound understanding of the theoretical foundation of various core subjects. Acquire analytical and logical thinking skills necessary to pursue higher Education. Gain employment at entry level positions based on program curriculum. After the completion of UG programme the student gets eligibility to join PG programme, MBA, Student will be eligible to write bank PO/Clerk examinations, Civil services and other group services examinations.	Physics: Master a broad set of knowledge concerning the fundamentals in the basic areas of Physics
B.Sc	MPC	Possess a sound understanding of the theoretical foundation of various core subjects. Acquire analytical and logical thinking skills necessary to pursue higher Education. Gain employment at entry level positions based on program curriculum. After the completion of UG programme the student gets eligibility to join PG programme, MBA, Student will be eligible to write bank PO/Clerk examinations, Civil services and other group services examinations.	Physics: Master a broad set of knowledge concerning the fundamentals in the basic areas of Physics

COURSE OUTCOMES (MATHEMATICS COMBINATION)

S.No	Paper Code	Paper Title	CO	Course Outcomes
1	1231	<i>Mechanics & Properties of matter</i>	CO1	To understand the physical significance of gradient of scalar field, Divergence and curl of vector fields. To understand the application of Gauss's, Stokes & Green's theorems.
			CO2	To understand the concept of variable mass system and motion of rocket. Collisions in 2D & 3D. Rutherford's scattering experiment and its importance.
			CO3	To understand Euler equations Gyroscope and Analysis of precessional velocity of symmetric top.
			CO4	To understand the relation between elastic moduli. Classification of beams and the load effect.
			CO5	Basic understanding of central force with Examples. Derivation of Kepler's laws
			CO6	To understand the concepts of inertial and non-inertial frames Lorentz transformations, length contraction & time dilation
2	2232	<i>Waves & Oscillations</i>	CO1	To understand the analysis of simple harmonic motion and its characteristics & Lissajous figures Determination of acceleration due to gravity "g" by using compound pendulum and Rigidity modulus by using Torsion pendulum

			CO2	To understand damped & forced oscillations. To get the concepts of relaxation time, quality factor, logarithmic decrement.
			CO3	To understand Fourier theorem and analyze square wave & saw tooth wave using it.
			CO4	To understand longitudinal vibration and transverse vibrations in a bar. Vibrations of a Tuning fork
			CO5	To understand the transverse vibrations in a string. Laws of vibrations in a string. Harmonics & overtones. Transport phenomena
			CO6	To understand different methods of production of ultrasonic's & applications
3	3232	Wave Optics	CO1	To understand aberration & methods of minimizing aberration. Concepts of Coma, Astigmatism & Achromatism
			CO2	To understand principle of superposition. Concept of interference, use of Newton's rings. Michelson interferometer.
			CO3	To understand the difference between Fresnel & Fraunhofer Diffraction. Concepts of half period zones
			CO4	Understanding polarization and different methods of conversion of unpolarized light into polarized light. Nicol prism & Double refraction
			CO5	Applications of lasers Basic principle of holography

				To understand different types of fibers & principle of fiber communication
4	4232	<i>Thermodynamics & Radiation Physics</i>	CO1	To understand concept of Thermodynamics and the kinetic theory of gases.
			CO2	To understand Carnot's engine & its efficiency. II law of Thermodynamics. Concepts of Entropy & use of T-S diagrams
			CO3	To understand the derivation of Maxwell's thermodynamical relations. Importance of specific heat of gases. Joule Kelvin effect
			CO4	To understand the concept of low temperature physics. Various experiments related to low temperature physics. To know Adiabatic demagnetization,
			CO5	To get the idea of various laws of quantum theory of radiation. Measurement of temperature of sun using pyrometers
5	5231A	<i>Electricity, Magnetism & Electronics</i>	CO1	To understand Gauss' law in electrostatics and its application. Use of dielectrics. Importance of electric polarization.
			CO2	Application of Biot-Savart's Law & to understand Hall effect. Basic concept of Faraday's & Lenz's laws. Understanding of self & mutual inductance. Working of Transformer
			CO3	To understand the effect of AC current through pure resistance, capacitance & inductance & in

				combination. Importance of Q factor. To understand the fundamental Maxwell's equations & Poynting theorem.
			CO4	understanding of PN junction & zener diode & LED characteristics To understand CB, CE, CC configurations of a transistor. Determination of h parameters.
			CO5	To understand digital electronics concepts. Conversion of binary to decimal, hexa & octal systems & viceversa. Importance of Demorgan's theorem in digital electronics. Half & full adder circuits, construction.
6	5232A	Modern Physics	CO1	To understand quantum numbers associated with vector atom model To know coupling schemes. Importance of Raman effect & its experimental setup. Applications of Raman effect
			CO2	To understand matter waves, De-Broglie's theory of matter waves. Heisenberg's uncertainty principle & experimental verification.
			CO3	To understand the postulates of quantum mechanics, Applications of Schrodinger wave equation in various cases
			CO4	To know Basic properties of nucleus.

				Understanding of liquid drop model & shell model. To get the idea of Alpha Beta decay & various theories. Neutrino hypothesis.
			CO5	To understand the basics of Nano materials & its classification Applications of nano materials To understand concept of superconductivity, types of superconductors & its applications.
7	6231A	Renewable Energy	CO1	Basic knowledge of different forms of energy resources and its role in economy. Study of the effects of environmental degradation, global warming, nuclear power generation.
			CO2	To understand the energy consumption in various sectors To know the energy resources available in India Need of new and renewable energy sources
			CO3	To get the idea of energy conversion methods viz solar and wind energy
			CO4	To understand Tidal power generation techniques and wave energy technologies To understand hydrogen production methods & hydrogen safety & use of hydrogen as fuel
			CO5	Analysis of conversion of bio mass into fuels, biomass plants types and their design.
8	6232A	Solar, Thermal, & photovoltaic aspects	CO1	Study the basics of solar radiations and solar intensity

				measurements.
			CO2	To understand the types of solar collectors like Flat plate collector and concentrating types & their efficiencies.
			CO3	To get the concepts of physics behind solar cell . Understand the solar cell fabrication, various types of cells.
			CO4	Arrangement of solar module and array. To understand the use of bypass and blocking diodes in solar modules.
			CO5	To understand the construction solar water heating systems their types. Passive & active space heating, solar thermal power generation. Applications of solar PV systems, its installation maintenance guidelines. PV market analysis.
9	6233A	Wind, Hydro & Ocean energies	CO1	Introductory knowledge of wind energy generation meteorology of wind. Types and classification of wind energy convertors.
			CO2	Understanding the construction and working of wind turbine and its characteristics.
			CO3	Understand the technology process of Ocean, thermal & tidal energy conservations.
			CO4	To understand micro, mini & hydro power systems Getting the concept of site selection & design for power stations.
			CO5	To understand the principle

				of OCET systems. Its advantages &disadvantages. Understand the origin &nature of tidal energy . Applications of wave energy
10	6234A	<i>Energy storage devices</i>	CO1	To understand the need of energy storage. Different modes of energy storage.
			CO2	Understanding the electrochemical energy storage system. Role of carbon nano -tubes in electrodes.
			CO3	To understand the magnetic &electric energy storage systems. Significance of super capacitors.
			CO4	Idea of fuel cells, difference between batteries &fuel cells. Efficiency and advantages of fuel cells.
			CO5	To get the knowledge of types of fuel cells& their applications.