VSR GOVERNMENT DEGREE AND PG COLLEGE MOVVA

DEPARTMENT OF PHYSICS

	I SEMESTER
	MECHANICS, WAVES AND OSCILLATIONS
CO1	Understand Newton's laws of motion and motion of variable mass system and its application to rocket motion and the concepts of impact parameter, scattering cross section.
CO2	Apply the rotational kinematic relations, the principle and working of gyroscope and itapplicationsand the precessional motion of a freely rotating symmetric top. Comprehend the general characteristics of central forces and the application of Kepler's laws to describe the motion of planets and satellite in circular orbit through the study of law of Gravitation.
CO3	Understand postulates of Special theory of relativity and its consequences such as length contraction, time dilation, relativistic mass and mass-energy equivalence.
CO4	Examinephenomena of simple harmonic motionand the distinction between undamped,damped and forced oscillations and the concepts of resonance and quality factor with reference to damped harmonic oscillator.
CO5	Appreciate the formulation of the problem of coupled oscillations and solve them to obtain normal modes of oscillation and their frequencies in simple mechanical systems.
	II SEMESTER
	WAVE OPTICS
CO1	1.Understand the phenomenon of interference of light and its formation in (i) Lloyd's single mirror due to division of wave front and (ii) Thin films, Newton's rings and Michelson interferometer due to division of amplitude
CO2	2. Distinguish between Fresnel's diffraction and Fraunhoffer diffraction and observe the diffraction patterns in the case of single slit and the diffraction grating.Describe the construction and working of zone plate and make the comparison of zone plate with convex lens.
CO3	3. Knowledge of the various methods of production of plane, circularly and polarized light and their detection and the concept of optical activity..
CO4	4. To learn about the different aberrations in lenses and discuss the methods of minimizing them.
CO5	5 Comprehend the basic principle of laser, the working of He-Ne laser and Ruby lasers and their applications in different fields. Understand the basic principles of fibreoptic communication andexplore the field of Holography and Nonlinear optics and their applications.
	III SEMESTER
	HEAT AND THERMODYNAMICS

CO1	1. Understand the basic aspects of kinetic theory of gases, Maxwell-Boltzman distribution law, equipartition of energies, mean free path of molecular collisions and the transport phenomenon in ideal gases
CO2	2. Gain knowledge on the basic concepts of thermodynamics, the first and the second law of thermodynamics, the basic principles of refrigeration,the concept of entropy,the thermodynamic potentials and their physical interpretations.Understand the working of Carnot's ideal heat engine, Carnot cycle and its efficiency
CO3	3. Develop critical understanding of concept of Thermodynamic potentials,the formulation of Maxwell's equations and its applications.
CO4	4 Differentiate between principles and methods to produce low temperature and liquefy air and also understand the practical applications of substances at low temperatures.
CO5	5 Examine the nature of black body radiations and the basic theories.
	IV SEMESTER PAPER IV
	ELECTRICITY, MAGNETISM AND ELECTRONICS
CO1	1. Understand the Gauss law and its application to obtain electric field in different cases and formulate the relationship between electric displacement vector, electric polarization, Susceptibility, Permittivity and Dielectric constant
CO2	2. Understand Biot and Savart's law and Ampere's circuital law to describe and explain the generation of magnetic fields by electrical currents. To Learn difference between the magnetic effect of electric current and electromagnetic induction and apply the related laws in appropriate circumstances.
CO3	3. Develop an understanding on the unification of electric and magnetic fields and Maxwell's equations governing electromagnetic waves. Knowledge of resonance in LCR AC-circuits, sharpness of resonance,Qfactor, Power factor and the comparative study of series and parallel resonant circuits.
CO4	4 To Learn the operation of p-n junction diodes, zener diodes, light emitting diodes and transistors
CO5	5 Learn and Analyse the operation of basic logic gates and universal gates and their truth tables.
	IV SEMESTER PAPER V
	MODERN PHYSICS
CO1	1.An understanding on the concepts of Atomic and Modern Physics, basic elementary quantum mechanics and nuclear physics.
CO2	2 Develop critical understanding of concept of Matter waves and Uncertainty principle.
CO3	3 Learn the principles of quantum mechanics and the formulation of Schrodinger wave equation and its applications
CO4	4. To Understand the basic properties of nuclei, characteristics of Nuclear forces, salient features of Nuclear models and different nuclear radiation detectors.Knowledge of Elementary particles based on their mass, charge, spin, half life and interaction.
CO5	5 Understand the types of the nano materials, their unique properties and applicationsexperimental methods for their determination . Knowledge of
	VI SEMESTER PAPER 6B

	LOW TEMPERATURE PHYSICS & REFRIGERATION
CO1	1.Knowledge of various methods and techniques used to produce low temperatures in the Laboratory.
CO2	2. Acquire a critical knowledge on refrigeration and air conditioning
CO3	3. Demonstrate skills related to Refrigerators through hands on experience and learns about refrigeration components and their accessories.
CO4	4 .Understand the classification, properties of refrigerants and their effects on environment.
CO5	5.The applications of Low Temperature Physics and refrigeration.
	VI SEMESTER PAPER 7B
	Solar Energy and Applications
CO1	1. Understand Sun structure, forms of energy coming from the Sun and its measurement.
CO2	2. Acquire a critical knowledge on the working of thermal and photovoltaic collectors.
CO3	3. To learn skills related to callus culture through hands on experience
CO4	4.Understand testing procedures and fault analysis of thermal collectors and PV modules
CO5	5.Applications of thermal collectors and PV modules.