P.R. Government College (A), Kakinada

Department of Physics and Electronics

Program: B.Sc.

Course Objectives

S. No.	Semester	PAPER	Course	Course Objectives
1	I	PAPER – 1	Mechanics	Learn the skills to analyse and solve problems involving bodies in motion through the application of vector analysis and mechanics. Learn the basic ideas and equation of Einstein special theory of relativity.
2	II	PAPER – 2	Waves and Oscillations	Express complex vibrating physical systems in a mathematical form that can be solved by using Fourier methods. Learn to use methods for solving differential equations
3	III	PAPER – 3	Optics	Use of matrices in different equations of light To explore different characteristics of light like Interference, Diffraction and Polarization
4	IV	PAPER – 4	Thermodynamics	To understand the concepts of heat engine and refrigerator. To understand the Quantum theory of radiation
5	V	PAPER - 5	Electrostatic & Magnetostatics Basic and Digital Electronics	Understand the relation between electric charge, electric field, electrical potential and magnetism. Calculate the magnitude and direction of the magnetic field for symmetric current distribution using the law of Biot-savart's law and Ampere's law.
6	V	PAPER - 6	Modern Physics	Study the molecular structure of molecules using Raman effect. Understand the concepts of Quantum mechanics dealt with Schrodinger wave mechanism.
7	VI	PAPER VII - A	Analog and Digital Electronics	Study different application of operational amplifier. Study different digital applications like Multiplexers, Encoders, and flip-flops.
8	VI	PAPER VII - B	Material Science	Study of material bonding and their behavior Study of mechanical, magnetic and dielectric materials
9	VI	**PAPER VII - C**	**Renewable energy**	To emphasize different types of energy sources and their origin. Production of electric energy from Thermal, Hydro, Wind, Solar and Tidal energies.

10	VI	PAPER VIII(B)-1	Fundamentals of Nanoscience	To Study the classification of nano materials. Study of Biomaterials.
11	VI	PAPER VIII(B)-2	Synthesis and Characterization of nanomaterials	Different methods of production of nano materials. Study of different characterization methods of XRD, SEM, TEM, AFM, XPS and PL
12	VI	PAPER VIII(B)-3	Applications of Nano materials and Devices	Understand the optical properties and electric transport of nano materials. Applications of Nano technology in Biotechnology and Medical science
13	VI	PAPER VIII(C)-1	Solar Thermal and Photovoltaic Aspects	Study of Basics of Solar Radiation, Radiative Properties and Characteristics of Materials. Study of Solar cell module assembly
14	VI	PAPER VIII(C)-2	Wind, Hydro and Ocean Energies	Study of Wind Energy Conversion System To attain knowledge on Ocean Thermal, Tidal and Wave Energy Systems
15	VI	paper VIII (C) -3	Energy Storage Devices	To illustrate different modes of energy storage To understand the working principle and classification of Fuel cells