JSS MAHAVIDYAPEETHA

JSS COLLEGE FOR WOMEN

Affiliated to the University of Mysore & Re-Accredited by NAAC with 'A' Grade
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DEPARTMENT OF PHYSICS

Course Outcomes

PROGRAMME: B.Sc.,

COURSE OUTCOMES	
SEMESTER-1 : MECHANICS & PROPERTIES OF MATTER	
CO-1	Will learn fixing units, tabulation of observations, analysis of data (graphically/analytical)
CO-2	Will learn about accuracy of measurement and sources of errors, importance of significant figures.
CO-3	Will know how g can be determined experimentally and derive satisfaction.
CO-4	Will see the difference between simple and torsional pendulum and their use in the determination of various physical parameters.
CO-5	Will come to know how various elastic moduli can be determined.
SEMESTER-2 : ELECTRICITY & MAGNETISM	
CO-1	Demonstration Gauss law, Coulomb's law for the electric field, and apply it to system of point charge as well as line, surface, and volume distributions of charges.
CO-2	Explain and differentiate the vector and Scalar formalisms of electrostatics.
CO-3	Apply Gauss's law of electrostatics to solve a variety of problems.

CO-4	Describe the magnetic field produced by magnetic dipoles and electric currents.
CO-5	Explain Faraday-Lenz and Maxwell laws to articulate the relation ship between electric and magnetic fields.
SEMESTER-3 : : WAVE MOTION AND OPTICS	
CO-1	Demonstrate plane and Spherical waves, Longitudinal and Transverse waves
CO-2	Explain the Linearity and superposition principle, superposition of Two collinear oscillations
CO-3	Describe velocity of transverse waves along stretched string. Vibrations in rods- Longitudinal and transverse mode
CO-4	Explain the Corpuscular model of light wave particle theory Huygen's theory Interference of light
CO-5	Describe the Fresnel's and Fraunhoffer Diffraction, Diffraction Grating
SEMESTER-4 : THERMAL PHYSICS AND ELECTRONICS	
CO-1	Explain the laws of Thermodynamics. Thermodynamic variables, Concept of work and Heat
CO-2	Explain the Carnot Engine Concept of Entropy, Carnot Engine, Carnot's Theorem , Reversible and irreversible process with example
CO-3	Explain the Maxwell's thermodynamic relations and Kinetic theory of gases, Black Body Radiation
CO-4	Explain the semiconductor devices and Junction transistors Zener diode as voltage regulator
CO-5	Explain the operational Amplifiers and its applications, Number systems and Logic gates De Morgan's theorem. NAND and NOR implementation
SEMESTER-5 : CLASSICAL MECHANICS AND QUANTUM MECHANICS-I	

CO-1	Identify the failure of classical physics at the microscopic level
CO-2	Find the relationship between the normalization of a wave function and the ability to correctly calculate expectation values or probability densities
CO-3	Explain the minimum uncertainty of measuring both observables on any quantum state.
CO-4	Describe the time-dependent and time-independent Schrödinger equation for simple potentials like for instance one-dimensional potential well and Harmonic oscillator
CO-5	Apply Hermitian operators, their Eigen values and eigenvectors to find various commutation and uncertainty relations
SEMESTER-5 : ELEMENTS OF ATOMIC, MOLECULAR & LASER PHYSICS	
CO-1	Describe atomic properties using basic atomic models.
CO-2	Interpret atomic spectra of elements using vector atom model.
CO-3	Interpret molecular spectra of compounds using basics of molecular physics
CO-4	Explain laser systems and their applications in various fields.
SEMESTER-6 : ELEMENTS OF CONDENSED MATTER & NUCLEAR PHYSICS	
CO-1	Explain the basic properties of nucleus and get the idea of its inner information
CO-2	Understand the concepts of binding energy and binding energy per nucleon v/s mass number graph
CO-3	Describe the processes of alpha, beta and gamma decays based on well-established theories.
CO-4	Explain the basic aspects of interaction of gamma radiation with matter by photoelectric effect, Compton scattering and pair production

CO-5	Explain the different nuclear radiation detectors such as ionization chamber, Geiger-Mueller counter etc.
CO-6	Explain the basic concept of scintillation detectors, photo-multiplier tube and semiconductor detectors.
SEMESTER-6 : ELECTRONIC INSTRUMENTATION & SENSORS	
CO-1	Identify different types of tests and measuring instruments used in practice and understand their basic working principles
CO-2	Get hands on training in wiring a circuit, soldering, making a measurement using an electronic circuit used in instrumentation
CO-3	Have an understanding of the basic electronic components viz., resistors, capacitors, inductors, discrete and integrated circuits, colour codes, values and pin diagram, their practical use.
CO-4	Understanding of the measurement of voltage, current, resistance value, identification of the terminals of a transistor and ICs.
CO-5	Identify and understand the different types of transducers and sensors used in robust and hand-held instruments
CO-6	Understand and give a mathematical treatment of the working of rectifiers, filter, data converters and different types of transducers.
CO-7	Connect the concepts learnt in the course to their practical use in daily life
CO-8	Develop basic hands-on skills in the usage of oscilloscopes, multimeters, rectifiers, amplifiers, oscillators and high voltage probes, generators and digital meters
CO-9	Servicing of simple faults of domestic appliances: Iron box, immersion heater, fan, hot plate, battery charger, emergency lamp and the like.

DEPARTMENT OF PHYSICS

PROGAMME OUTCOMES

- Discipline Knowledge: Knowledge of Science and ability to apply to relevant areas.
- Problem solving: Execute a solution process using first principles of science to solve problems related to respective discipline.
- Modern tool usage: Use a modern scientific, engineering and IT tool or technique for solving problems in the areas of their discipline.
- Ethics: Apply the professional ethics and norms in respective discipline.
- Individual and teamwork: work effectively as an individual as a team member in a multidisciplinary team.
- Communication: Communicate effectively with the stake holders, and give and receive clear instructions.