

Department of Physics
Courses Outcomes (COs)


Class	Course	<i>After completion of these courses students will be able to;</i>
B.Sc. . I	Semester -I Paper -I Mechanics-I	<ol style="list-style-type: none"> 1. Differentiate between scalars and vectors. 2. Recognize quantities as either scalars or vectors. 3. Add vectors. 4. Use coordinates to represent and work with vectors. 5. Decompose vectors into components. 6. Calculate the direction of vectors. 7. Solve problems about vectors. 8. Distinguish between linear, nonlinear, partial and ordinary differential equations. 9. State the basic existence theorem for 1st order ODE's and uses the theorem to determine a solution interval. 10. Construct a second solution to a second order differential equation with constant coefficient. 11. Recognize and solve a homogeneous differential equation. 12. Classify Newton's First, Second and Third Laws and its Application. 13. Explain Angular velocity, Angular momentum and torque 14. Describe the kinetic energy and moment of inertia.
B.Sc. -I	Semester -I Paper -II Mechanics- II	<ol style="list-style-type: none"> 1. Describe all objects, irrespective of their mass, experience the same acceleration g when falling freely under the influence of gravity at the same point on the Earth. 2. Explain if gravity is the only force acting on an object, the sum of kinetic energy and gravitational energy is constant. 3. Explain there are various forms of potential energy, all of which depend on the position of an object rather than on its motion. 4. Explain the elastic properties of matter and expression of bending beam with its application as a cantilever. 5. Describe the concept of surface tension and its relation with excess pressure and radius of curvature. 6. Determine the surface tension by Jaeger's method from experiments.

B.Sc. I	Semester -II Paper -III Electricity and Magnetism	<ol style="list-style-type: none"> 1. Describe gradient, divergence, Curl and their significance. 2. Explain Line, Surface and Volume integrals of vector fields. 3. Define Gauss- divergence and stoke's theorem of vector. 4. Define electric field, electric flux, and potential as line integral. 5. Describe electric dipole, uniformly charge distribution of Spherical shell and solid sphere. 6. Explain capacitance of Spherical, Parallel plate and Cylindrical condenser. 7. Describe Dielectric medium, polarization. 8. Explain Gauss theorem in dielectrics and parallel plate capacitor with dielectric medium.
B.Sc. I	Semester -II Paper-IV Electricity and Magnetism	<ol style="list-style-type: none"> 1. Describe the concept of electromagnetic induction, self induction of solenoid, mutual induction of coaxial solenoid. 2. Explain the relationship between electrical charge, electrical field, electrical potential, and magnetism. 3. Calculate the magnitude and direction of the magnetic field for symmetric current Distributions using the Law of Biot-Savart's and Ampere's Law 4. Explain knowledge of Electromagnetic field theory that allows the student to have a solid theoretical foundation to be able in the future to design emission, propagation and reception of electro- magnetic wave system.
B.Sc. II	Semester -III Paper -V General Physics, Sound and Acoustic	<ol style="list-style-type: none"> 1. Identify Del, Gradient, Divergence and Curl Operator. 2. Describe line, Surface and Volume integral. 3. Explain Gauss's divergence and stoke theorem. 4. Give details of precession motion , need of precession , nutation, gyroscope and understand Lanchester's Rule 5. Describe gyrostatic pendulum, its motion of rolling disc and hoop .Its application – riding on bicycle, refilling of barrels of guns and rifles. 6. Study the concept of torsional oscillation, Describe torsion of wire, 7. Explain flat spiral spring- and expression for Y and η. 8. Explain the concept transducers and its application, summarize pressure microphone, moving coil loud speaker, 9. Construct the process of recording of sound in compact disc. 10. Explain reverberation of time, List the factors affecting acoustics of building. 11. Prepare sabine's experimental work and formula. 12. List requirement of good acoustics.

<p>B.Sc. II</p>	<p>Semester -III Paper -VI</p> <p>Electronics and Semiconductor Devices</p>	<ol style="list-style-type: none"> 1. Explain the basic digital electronic systems. 2. Describe function of basic digital circuits and use of transistors to create logic gates in order to perform Boolean logic. 3. Explain symbols, Truth tables, Boolean equations, & working principle 4. Measure the amplitude and frequency utilizing oscilloscope 5. Explain various multistage and power amplifier configurations. 6. Explain the concept of feedback and its characteristics. 7. Study the Operational Amplifier and their types 8. Explain the principal Understand and analyze the IC 741 operational amplifier and its characteristics. 9. Design the different oscillator circuits for various frequencies. 10. Describe the FET, JFET, and MOSFET. 11. Explain the characteristics of FET and UJT
<p>B.Sc. II</p>	<p>Semester -IV Paper – VII</p>	<ol style="list-style-type: none"> 1. Classify cardinal points of optical system. 2. Construction of image using cardinal points 3. Find Newton's formula, relation between f and f' for optical system. 4. Differentiate between lateral, axial and angular magnification. 5. Point up Michelson's interferometer and its application to measure wave length and refractive index of thin film, well-known working of fabry-perot interferometer, recognized the superiority of F-Pinterometer over Michelson's intereferometer. 6. Express theory of Fresnel's half period zone, construction and working of zone plane, fresnel's diffraction at a straight edge. 7. Compute the type of optical fibers, classification of step index fiber, studied advantages of optical fiber. 8. Define resolving power of plane diffraction grating and prism. 9. Classify Absorption, spontaneous and stimulated emission. 10. Define Einstein coefficient , population inversion, optical and electrical pumping, Learn properties of laser, ruby and He-Ne laser, Application of laser, idea of holography

<p>B.Sc. II</p>	<p>Semester -IV Paper – VIII</p> <p>Relativity and Modern Physics</p>	<ol style="list-style-type: none"> 1. Develop the concepts of modern physics. basic knowledge of special theory of relativity and general theory of relativity, elementary quantum mechanics, nuclear physics, and particle physics. 2. Explain the negative result of Michelson Morley experiment, Galilean and Lorentz Transformation. 3. Evaluate the basic concept of Photo-electric effect and Compton Effect. 4. Introduce about Photoelectric Effect and its applications. 5. Describe X-Rays, Bragg's law, X-ray spectrum and its applications. 6. Explain basic properties of nucleus and nuclear models to study the nuclear structure properties. 1. Analyze the various aspects of nuclear reactions will give idea how nuclear power can be generated nuclear fission and fusion.
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