

SHRI GULAB SINGH GOVT. DEGREE COLLEGE CHAKRATA, DEHRADUN
PROGRAMME OUTCOMES AND COURSE OUTCOMES
SUBJECT: PHYSICS

Programme: *Certificate Course in Basic Physics(NEP)*


Programme outcomes (POs):


- Competence in the methods and techniques of calculations using Mechanics.
- Students are expected to have hands-on experience to apply the theoretical knowledge to solve practical problems.

Course Title: **Mechanics, Semester-I**

Course Outcomes:

- Understanding of Vector Algebra and Vector Calculus.
- Understand the physical interpretation of gradient, divergence and curl.
- Study of gravitational field and potential and understanding of Kepler's laws of Planetary motion.
- Understanding of different frames of references and conservation laws.
- Understand the dynamics of rigid body and concept of moment of inertia.
- Study of moment of inertia of different bodies and its applications.
- Study the properties of matter, response of the classical systems to external forces and their elastic deformation and its applications.
- Comprehend the dynamics of fluid and concept of viscosity and surface tension along with its applications.
- Understanding the basic idea of waves and oscillations through Simple harmonic motion.


Co-ordinator
IQAC
S.G.S. Govt. Degree
College, Chakrata (D.Dun)


(Dept. of Physics)


प्राचार्य
श्री गुलाब सिंह राजकीय महाविद्यालय
चक्राता (देहरादून)

UG COURSE B.Sc.-Ist year

Programme outcomes (POs):

- Describe what students are expected to know or be able to do by the time of graduation from the program.
- Competence in the methods and techniques of calculations using Mechanics.
- Describe what students are expected to know or be able to do by the time of graduation from the program.
- To develop scientific thinking and apply it to various problem solving techniques. To understand basic laws of nature and their interrelations.
- To apply physical theories in a vast domain ranging from very small to vary large distances.
- To understand importance of experiments in scientific theories and a working knowledge of various instruments for measurement of physical quantities.
- To pursue higher studies in PHYSICS.

Course Title: Paper- I Mechanics


Course Outcomes:


- Know about reference frames and laws of motion.
- Apply knowledge of gravitational laws to motion of planets.
- Apply dynamics of rigid bodies to different practical problems.
- Know about elasticity and relation between different elastic properties.
- Understand properties of compressible matter and apply this knowledge to flow of fluids.


Course Title: Paper- II Electricity and Magnetism Status

Course Outcomes:

- Understand the concept of vector integrals.
- Apply concepts of gradient, divergence and curl to different physical problems.
- Learn Gauss theorem and its application.
- Learn about properties of dielectrics and capacitors.
- Study Biot-Savart law and properties of magnetic materials.
- Know about Maxwell's equations and appreciate the mathematical beauty of a physical theory.


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Course Title: Paper- III Waves , oscillations and acoustics

Course Outcomes:

- Know about simple harmonic motion.
- Know about differential equation of wave motion and appreciate the importance of waves in daily life.
- Know forced oscillations and resonance.
- Learn physics of musical sounds.
- Know about acoustics of building and derive Sabine's formula.

Course Title: Practicals

Course Outcomes:


- Apply theoretical knowledge to various practical problems.
- Verify theorem of parallel axis.
- Find modulus of rigidity of given material.
- Find moment of inertia of different objects using different techniques.
- Find frequency of AC mains.
- Demonstrate Stationary waves and use this concept to find frequency of electric vibrator and tuning forks.
- To study damping in oscillations and find damping constant.
- To find low resistances by using Carey-Foster bridge.
- To convert galvanometer into a voltmeter and ammeter.
- To find resistance low galvanometer.


UG COURSE B.Sc.-IInd year


Course Title: Thermal Paper- Physics and Statistical

Course Outcomes:

- Understand the concept of Know temperature.
- Know about laws of thermodynamics.
- State first and second laws of thermodynamics in precise mathematical forms.
- Understand concept of entropy and its importance.
- Study relations between different thermo dynamical variables and potentials Understand radiation and derive Planck radiation formula.
- Learn basic postulates of statistical mechanics.
- Know about Maxwell distribution law for velocities and speeds.
- Understand transport phenomena


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Course Title: Optics Paper- II

Course Outcomes:

- Know about nature of light and Fermat's principle of least time.
- Know about construction and working of different optical instruments.
- Understand concept of superposition of waves and interference.
- Understand phenomena of diffraction and its applications in optical instruments.
- To know about polarization of light

Course Title: Solid State Physics Paper-III


Course Outcomes:


- Define lattice and translational vectors.
- Understand the concept of reciprocal lattice and its application in crystal structure.
Understand different methods to establish crystal structure.
- Understand elementary lattice dynamics.
- Explain the fundamental concepts of free electron theory.
- To understand band theory of solids and its application in semiconductor physics.


Course Title: Practicals

Course Outcomes:

- Determine thermal Determine conductivity of materials.
- Determine mechanical equivalent of heat using Joule's calorimeter.
- Determine mechanical calorimeter equivalent of heat by Callender and Barne's method.
- Study statistical distribution using given data.
- Determine wavelength of light by Newton's rings.
- Determine wavelength of light using a biprism.
- Determine refractive index of material of prism.
- Measure wavelength of light using diffraction grating.
- To measure specific rotation of cane sugar.
- Determine resolving power of telescope.


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