

B.Sc. Physics (Course outcomes)

B.Sc First Year

Paper I Mathematical Physics and Strength of Materials

- CO 1 Students will be able to articulate and describe the Concept of scalar and vector field.
- CO 2 Students will be able to articulate and describe the Concept of Gradient, curl and divergence.
- CO 3 Students will be able to articulate and describe Gauss theorem, Stokes theorem and Green's theorem.
- CO 4 Students will be able to articulate and describe the Concept of angular momentum for combined motions, translation and rotation. Time taken by various objects of same mass, rolled over the inclined surfaces. Elasticity and various elastic constants
- CO 5 Students will be able to articulate and describe the Energy stored in a stretched wire.
- CO 4 Students will be able to articulate and describe the Linear and rotational quantities Concept of moment of inertia and how to determine the Moment of Inertia of various objects.

Paper-II, Heat and Thermodynamics & Statistical Mechanics

- CO 1 Students will be able to articulate and describe the Concept of thermodynamic systems, zeroth law of thermodynamics.
- CO 2 Students will be able to articulate and describe the Concept of thermodynamic processes.
- CO 3 Students will be able to articulate and describe the Real and perfect gases.
- CO 4 Students will be able to articulate and describe the Carnot theorem and Carnot engine.
- CO 5 Students will be able to articulate and describe the Clausius-Clapeyron's equations.

B. Sc. 2nd Year

Paper I: Optics

- CO 1 Students will be able to articulate and describe the Concept of Fermat's principle.

- CO 2 Students will be able to articulate and describe the Image theory for Lens systems.
CO 3 Students will be able to articulate and describe the Optical aberrations and dispersions.
CO 4 Students will be able to articulate and describe the Concept of interference and diffraction.
CO 5 Students will be able to articulate and describe the Newton's Ring, Fresnel's Biprism, Michelson Interferometer, Polarization of light.

Paper-II Electrostatics, Magnetostatics and Electrodynamics

- CO 1 Students will be able to articulate and describe the concept of Hysteresis, Soft and Hard magnets
CO 2 Students will be able to articulate and describe Concept of Electric field and electrostatic energy stored in electrostatic field
CO 3 Students will be able to articulate and describe the concept of Gauss theorem and its applications.
CO 4 Students will be able to articulate and describe the concept of Concept of electric potential and electric potential of various systems
CO 5 Students will be able to articulate and describe the concept of Method of electrical images and applications.
CO 7 Apply the Biot-Savert's law and Ampere's circuital law in some physical systems.
CO 8 Developing to ability of mathematical calculations while applying Biot-Savert law and Ampere's circuital law.

B. Sc. 3rd Year

Paper-I Quantum Mechanics & Molecular Spectra

- CO 1 Students will be able to articulate and describe the Concept of Black body radiation.
CO 2 Students will be able to articulate and describe the concept of Schrodinger equation.
CO 3 Students will be able to articulate and describe the concept of Hamiltonian operator, Potential step and Barrier.
CO 4 Students will be able to articulate and describe the Concept of spectrum and its various types, Stern-Garlech experiment, Fine lines, Zeeman effect, Stark effect, Hyperfine splitting Raman spectra-classical and quantum explanations
CO 5 Students will be able to articulate and describe the Microwave, infrared and ultraviolet spectrum of molecules Concept of nucleus and its properties.
CO 6 Students will be able to articulate and describe the Radiation and particle detectors

Paper II Solid State and Electronics

- CO 1 Students will be able to articulate and describe the concept Analysis of Crystal structure.
- CO 2 Students will be able to articulate and describe the concept of Crystal diffraction in different perspectives.
- CO 3 Students will be able to articulate and describe the concept of Thermal properties of Solids.
- CO 4 Students will be able to articulate and describe the concept of Band theory of solids
- CO 5 Students will be able to articulate and describe the concept of Specific heat: Dulong Petit, Einstein and Debye theory. Kirchhoff laws.
- CO 6 Students will be able to articulate and describe the concept of Diodes and Transistors.
- CO 7 Students will be able to articulate and describe-Field effect transistors, Mosfets and SCR.

Govt. College, Nagda