

Department of Physics

PROGRAMME EDUCATIONAL OBJECTIVE

Technical Proficiency:

Provide a degree course suitable for students of high ability, combining and relating Physics with other branches of science.

Professional Growth:

Prepare students for further study, or for professional career in areas requiring the application of scientific knowledge and skills.

Management Skills:

Equip students with ability to apply scientific knowledge to various problem solving techniques.

PROGRAMME OUTCOME:

POs describe what students are expected to know or be able to do by the time of graduation from the program. The Program Outcomes of UG in Physics are:

At the end of the program the students will be able:

- 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.

UG Course Outcomes Physics

Year-I

Course Title: Mechanics

Paper-1

Status: Compulsory Course

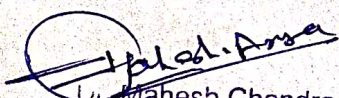
Course Instructors: Mr. Prashant, Assistant Professor

Dept. of Physics,

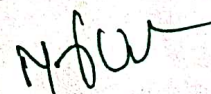
Mobile: 9410381176

Email: gangwarprashant.gangwar@gmail.com

After Successful completion of this course, students will be able to:



Mahesh Chandra Arya
IQAC/NAAC Coordinator
Rajkiya Mahavidhyalaya
Rukhnikhal (Pauri Garhwal)



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बौडा मन्डाल

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

Course Title: Electricity and Paper- II, Magnetism

Status: Compulsory Course

Course Instructors: Mr. Prashant, Assistant Professor

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After Successful completion of this course, students will be able to:

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

Course Title: Waves, oscillations and Acoustics

Paper- III

Status: Compulsory Course

Course Instructors: Mr. Prashnat, Assistant Professor Dept. of Physics

After Successful completion of this course, students will be able to:

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

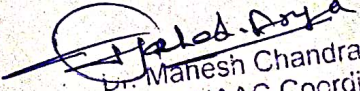
Course Title: Practical

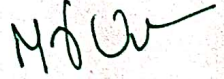
Status: Compulsory Course

Course Instructors: Mr. Prasaht, Assistant Professor Dept. of Physics

After Successful completion of this course, students will be able to:

1. Apply theoretical knowledge to various practical problems.
2. Find moment of inertia of different objects using different techniques.
3. To study damping in oscillations and find damping constant.
4. To convert galvanometer into a voltmeter and ammeter.
5. To find resistance of galvanometer.


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श्रीडा गढ़वाल

Year-II

Course Title: Paper- Thermal Physics and Statistical Mechanics

Course Instructors: Mr. Prashant, Assistant Professor, Dept. of Physics,

After Successful completion of this course, students will be able to:

1. Understand the concept of temperature.
2. Know about laws of thermodynamics.
3. Understand concept of entropy and its importance,
4. Study relations between different thermo dynamical variables and potentials
5. Understand radiation and derive Planck radiation formula
6. Learn basic postulates of statistical mechanics
7. Know about Maxwell distribution law for velocities and speeds

Course Title: Optics

Paper- II

Course Instructors: Mr. Prashant, Assistant Professor, Dept. of Physics

After Successful completion of this course, students will be able to:

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

Course Title: Solid State Physics

Paper-III

Status: Compulsory Course

Course Instructors: Mr. Prashant, Assistant Professor , Dept. of Physics

After Successful completion of this course, students will be able to:

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

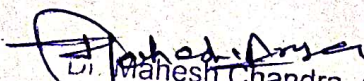
Course Title: Practical


Status: Compulsory Course

Course Instructors: Mr. Prashant, Assistant Professor, Dept. of Physics

After Successful completion of this course, students will be able to:

1. Determine thermal conductivity of materials
2. Determine mechanical equivalent of heat using Joule's calorimeter.
3. Study statistical distribution using given data
4. Determine refractive index of material of prism
5. To measure specific rotation of cane sugar.


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Year-III

Course Title: Quantum Mechanics

Paper- I

Status: Compulsory Course

Course Instructors: Mr. Prashant, Assistant Professor, Dept. of Physics

After Successful completion of this course, students will be able to:

1. Know the basic concepts of quantum theory.
2. Understand mathematical formulation of quantum mechanics.
3. Study one dimensional problems of a particle in a box and potential steps.
4. Know about barrier penetration.
5. Solve problem of hydrogen atom.

Course Title: Modern Physics

Paper- II

Course Instructors: Mr. Prashant, Assistant Professor, Dept. of Physics

After Successful completion of this course, students will be able to:

1. Understand different models of atomic structure.
2. Know about atomic spectra and theories about their origin.
3. Know about theory and working of LASERS;
4. Know about structure of atomic nucleus and semi empirical mass formula;
5. Understand radioactivity and nuclear energy.
6. Know about nuclear fission and fusion.

Course Title: Basic Electronics

Paper III

Course Instructors: Mr. Prashant, Assistant Professor, Dept. of Physics,

After Successful completion of this course, students will be able to:

1. Know about semiconductor diodes and optoelectronic devices,
2. Understand working of power supplies and voltage regulator
3. Know about amplifiers and FET:
4. Know about negative feedback and self-sustained oscillations
5. Know about multivibrators:
6. Understand Boolean algebra and basics of digital circuits.

Course Title: Practicals

Status: Compulsory Course

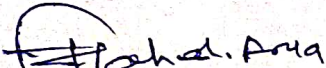
Course Instructors: Mr. Prashant, Assistant Professor, Dept. of Physics

After Successful completion of this course, students will be able to:

1. Verify truth table for different gates
2. Study 1-V characteristics of diode
3. Study 1-V characteristics of zener diode
4. Study pnp transistor in CE configuration
5. Study npn transistor in CE configuration



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