



Shri Shivaji Education Society Amravati's

# Science College, Congress Nagar, Nagpur



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## Department of Physics

### Vision

To be the best known science college to provide a value-based education, foster a scientific temperament, and instill scientific ideals.

### Mission

To cultivate modern scientific knowledge via extracurricular, co-curricular, and academic activities.

### Quality Policy

Committed to provide high-quality education by continuously enhancing research, teaching, learning, moral and ethical principles.

### Science graduate attributes

- Be effective global citizens who recognize and challenge inequality.
- Professional, ethical, and social responsibility
- Digitally Fluent, Innovation, Creativity, Incubation
- Research, inquiry, and critical thinking

## Program Outcomes:

- PO-1. Demonstrate a solid understanding of key concepts across all branches of physics.
- PO-2. Employ critical thinking and scientific knowledge to design, conduct, record, and analyze the results of physics experiments.
- PO-3. Solve the problem and also think methodically, and independently and draw a logical conclusion
- PO-4. Create an awareness of the impact of Physics on society, and development outside the scientific community.
- PO-5. To acquaint with modern techniques and decent equipment.

## Program Specific Outcomes

- PSO-1. Gain knowledge of Physics through theory and practicals.
- PSO-2. Understand good laboratory practices and safety.
- PSO-3. Develop research-oriented skills.
- PSO-4. Make aware and handle the sophisticated instruments/equipment.

## B. Sc. Semester-I

### Discipline Specific Core Course (DSC-1)-PHYSICS - Paper-I (BPH1T01)

#### (Measurements, Mechanics, and Properties of Matter)

After this course the students will be able to

Sr. No	Course outcome
1.	Develop interest in measurement with conceptual knowledge of physics.
2.	Develop practical skills in accurate measurements with minimal errors.
3.	Understand and practice these skills while performing physics practical.
4.	Understand the use of apparatus and their use without fear.
5.	Correlate their physics theory concepts with practical outcomes.
6.	Understand the concepts of errors and their estimation.

### Discipline Specific Core Course (DSC-2)-PHYSICS - Paper- II (BPH1T02)

#### (Kinetic theory of gases and Thermodynamics)

Sr. No	Course outcome
1	Understand the assumptions of kinetic theory of gases, ideal and real gases.
2.	Understand the nature of calorimetry by specific heat of solids and gases.
3.	Analyses different transport phenomena in gases

4	Describe basic concepts of Thermodynamics.
5.	Analyses the laws of thermodynamics in different cases and entropy.
6.	Restate definition of the system, surrounding, closed and open system, extensive and intensive variables and properties.
7.	Design various types of basic heat engines.
8.	Apply Maxwells thermodynamic relations.
9.	Understanding the low-temperature physics

**Vocational Skill Course (VSC - 1) - PHYSICS Course Code (BVS1P01)**

**(Electronic and Electrical Components)**

After the completion of this course students will be able to

<b>Sr. No.</b>	<b>Course Outcome</b>
1.	Get acquainted with hands-on practice for electronic components and their uses in electronic circuits
2.	Get acquainted hands-on practice for electrical components and their uses in electrical circuits
3.	Apply the practical knowledge in conducting various practicals during graduation
4.	Apply the practical knowledge in repairing household electronic and electrical

**B. Sc. Semester-II**

**Discipline Specific Core Course (DSC-)-PHYSICS - Paper-III (BPH2T03)**

**(Acoustic and Ultrasonics)**

After completing this course students will be able to

<b>Sr. No.</b>	<b>Course outcome</b>
1.	Understand the different aspects and attributes of musical sounds. Also response of the ear to sound and audible limits of human ear
2.	Learn about various musical scales and musical instruments
3.	Learn about acoustics of a hall and requirement of a good acoustic of a hall
4.	Learn about different microphones their design and action and also about loudspeaker.
5.	Learn about the characteristics and production method as well as detection of USW.
6.	Learn about different applications of USW like SONAR, soldering, cleaning, and medical applications like sonography etc.

**Discipline Specific Core Course (DSC-4)-PHYSICS - Paper-IV (BPH2T04)**

**(Oscillations and Black body radiation)**

After completing this course students will be able to

<b>Sr. No.</b>	<b>Course outcome</b>
<b>1</b>	Understand the simple harmonic motion, and properties of different oscillatory motion of an object.
<b>2</b>	Understand the damped and forced oscillation
<b>3</b>	Understand mechanical waves in a medium and wave equation of the transverse waves on string and longitudinal waves in a fluid.
<b>4</b>	Understand black body radiation and development of quantised nature of blackbody radiation.
<b>5</b>	Understand the temperature of heavenly bodies

**Vocational Skill Course (VSC) - PHYSICS Course Code (BVS2P03)**

**(Instrumental Errors in Measurement)**

<b>Sr No.</b>	<b>Course outcome</b>
<b>1.</b>	Understand the function of different instruments
<b>2</b>	Choose and apply the proper instrument for the measurement.
<b>3</b>	Handle the instrument carefully and apply the practical knowledge in his further study
<b>4</b>	Find the different man made and instrumental errors in doing different practical.