

Yogoda Satsanga Palpara Mahavidyalaya

Department of Physics

Bachelor of Science (Honours) Major In Physics

4-Year Undergraduate Programme

Programme Specific Outcomes

- Apply the basic principles of Physics to the events occurring around us and also in the world.
- This programme helps to develop critical thinking, creativity, analytical and problem solving skills among the students.
- Explain any physical phenomenon numerically as well as graphically.
- The students will be able to engage themselves in independent thinking and lifelong learning in the present context of scientific and technological advancement.
- Communicate scientific information in a clear and concise manner both orally and in writing or through audio video presentations
- Students after completion of this programme have the eligibility to join jobs in Indian Civil Services as IAS, IFS, IPS etc., WBCS, UPSC, Banking Sector, Railways, Airlines, technical jobs at research institutes or as school teacher through SSC.
- The students will acquire a scientific knowledge of the fundamental principles of Physics through study of Classical Mechanics, Electromagnetic Theory, Optics, Heat and Thermodynamics, Statistical Mechanics, Solid State Physics, Nuclear Physics, Modern Physics, Quantum Mechanics and other areas of Physics.
- The students will acquire a fair amount of computational skill using open source software packages such as Gnuplot, Python, Numpy, Scipy, Matplotlib, Matlab, LaTeX , Arduino IDE etc. in both Linux and Windows platform. This will not only prepare them for higher studies or research in any branch of Physics but also make them ready for various kind of job in IT sector and other industries.
- The students will learn effective communication skill to present their knowledge of physics from basic concepts to specific advanced areas in the form of preparation of laboratory note book, project work, seminar presentation, poster presentation, wall magazines, models and other modes.

Course Outcomes

Semester	Course Type	Couse Code	Course Name	Course Outcomes
1 st Semester	Major-1	PHSHMJ101	Foundation of Physics -1	<p>UNIT – I: Preliminary Math. Methods:</p> <p>Physics communicates in mathematical terms. Using suitable mathematical language, students will be able to express precise solutions. Applications in the solution of various physical systems of interest are the main focus of this course. Students will also be able to solve problems with the use of differential equations and vector analysis.</p> <p>UNIT – II: Introduction to Thermodynamics :</p> <p>The course teaches students about the fundamental physics of heat and temperature, including their relationship with energy, work, radiation, and matter. Students learn how thermodynamic rules apply to heat engines, converting heat into work. This course covers thermodynamic laws, system descriptions, and potentials.</p>
	SEC	PHSSEC01	Introduction to Python programming and Graph Plotting (Practical)	<p>This course covers the fundamentals of scientific computing with Python. Python programming fundamentals will be taught for writing algorithmic code. The course will focus on Python-based numerical methods and special applications in physics.</p>

	Minor (Disc.-I)	PHSMI01	Mathematical Physics and Mechanics	<p>UNIT – I: Preliminary Classical Mechanics :</p> <p>A variety of classical dynamical systems will be studied in this course. Through the process of solving problems, students will acquire various fundamental ideas related to the description of a mechanical system.</p> <p>UNIT – II: Basic Electricity & Magnetism:</p> <p>This course covers the foundational ideas of magnetism and electricity. By resolving physical problems, students acquire knowledge about the concepts of electricity and magnetism. Applications pertaining to electrical networks, devices, and the magnetic and electrical characteristics of materials will also be taught to the student.</p>
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Semester	Course Type	Couse Code	Course Name	Course Outcomes
2nd Semester	Major-2	PHSHMJ102	Foundation of Physics -2	<p>UNIT – I: Preliminary Classical Mechanics :</p> <p>A variety of classical dynamical systems will be studied in this course. Through the process of solving problems, students will acquire various fundamental ideas related to the description of a mechanical system.</p> <p>UNIT – II: Basic Electricity</p>

				<p>& Magnetism</p> <p>This course covers the foundational ideas of magnetism and electricity. By resolving physical problems, students acquire knowledge about the concepts of electricity and magnetism. Applications pertaining to electrical networks, devices, and the magnetic and electrical characteristics of materials will also be taught to the student.</p>
	SEC	PHSSEC02	Basic Instrumentation	<p>This course addresses some fundamental concepts in measuring and provides an introduction to several tools. Additionally, it provides an overview of electrical wiring in homes.</p>
	Minor (Disc.-II)	PHSMI01	Thermal Physics and Statistical Mechanics	<p>The goal of this course is to gain a fundamental understanding of molecular systems and the thermodynamic behaviours of matter. Certain thermal qualities have been measured in laboratory investigations.</p>