


**Sharnbasveshwar College of Science, Kalaburagi**

**Department of Physics**

**Programme Outcomes, Programme Specific Outcome (PSO) & Course Specific Outcome (CSO) for the academic year 2018-19**

<p><b>Programme Outcomes:</b></p>	<p>Students of Physical Science are expected to</p> <ul style="list-style-type: none"> <li>➤ Inculcate scientific thinking and awareness.</li> <li>➤ Understand the basic concepts, fundamental principles, and the scientific theories related to various scientific phenomena of Physics.</li> <li>➤ Acquire the skills in handling scientific instruments in the laboratory, and planning and performing experiments in a proper manner.</li> <li>➤ Explain the basic scientific principles and methods.</li> <li>➤ Analyze the applications of mathematics to the problems in physics.</li> </ul> <p><b>Laboratory Facilities:</b></p> <ul style="list-style-type: none"> <li>➤ We have well-equipped and three spacious laboratories each as accommodate 80 Students comfortably.</li> <li>➤ We have two computers and one laptop with internet connection.</li> <li>➤ Department library has a collection of more than 50 books from Pioneer authors in physics.</li> </ul> <p><b>The students perform experiments related to the following topics:</b></p> <ul style="list-style-type: none"> <li>➤ Mechanics</li> <li>➤ Sound</li> <li>➤ Electricity &amp; Magnetism</li> <li>➤ Optics</li> <li>➤ Heat &amp; Thermodynamics</li> <li>➤ Nuclear Physics, &amp; Solid State Physics</li> <li>➤ Electronics</li> </ul> <p>The laboratory is equipped with sufficient number of apparatus to provide equal opportunity for all the students. Students at senior level are able to design electronic circuit in the laboratory as part of the extracurricular activities.</p>
<p><b>Programme Specific Outcome (PSO)</b></p>	<p>We offer six semesters undergraduate course with Physics as one of the three optional under Gulbarga University, Gulbarga, following the Choice Based Credit System (CBCS), prescribed by UGC, India. A student may either choose Physics as a subsidiary subject.</p> <p>Physics, being a natural science, investigates the interactions among various particles and force fields; those govern the rhythms of the dynamics of the ever-alive universe. There are different aspects of the phenomena, like mechanical, thermal, electrical, magnetic properties etc. Mankind has learned to see the world from the macroscopic to microscopic length and time scales. We have entered from the quantum in to Nano-ages in science and technology. Now We realize that the physics changes when the speed of a matter becomes comparable with speed of light, which makes the scientists to reconsider the absoluteness of space-time and put forward the theory of relativity. The modification may not be earnestly needed in daily-world but surely relevant in Astor and terrestrial physics.</p> <p>The exploration of the different corners of physics through hard-core mathematical calculations and demonstrative verification of the theories through table-top experiments, our students learn and practice under the guidance of a group of qualified and trained mentors.</p>

	<p>On the completion of under-graduate (B.Sc.) course in Physics,</p> <ol style="list-style-type: none"> <li>1. Students learn the basic mathematical tools, needed to understand different branches of Physics. They are trained to apply these techniques through numerical exercises.</li> <li>2. They are familiarized with hands-on training in the furnished and equipped laboratory for practical verification of the physical theories that they learn during class lectures.</li> <li>3. They are trained with basic computer programming with motivation of Physics-applications.</li> <li>4. Physics subject makes the students eligible for the further post-graduate studies, in physics, electronics, instrumentation, computer applications etc. They can apply for different integrated- PhD courses in IITs and NITs. They may appear for competitive examinations like JAM, JEST etc.</li> </ol>
<p><b>Course Specific Outcome (CSO)</b></p>	<p>Teachers or researchers in different branches in pure and applied physics.</p> <ol style="list-style-type: none"> <li>1. In physics, we investigate different properties of natural objects, like mechanical, thermal, electrical, magnetic properties etc.</li> <li>2. In the entire course work, the curriculum is divided into several modules (core courses), wherein an instructor sincerely discusses on each of the manifestations in details.</li> <li>3. The approach is both theoretical and experimental.</li> <li>4. In accordance with the recent development in information technology, the students get familiarized with the computation facility with motivations for applications of physics</li> <li>5. They learn the basic mathematical tools like vector analysis, differential equations, matrix and determinant, Fourier series, Complex analysis etc. and their applications in some prototype physics problems.</li> <li>6. The mechanical and general properties of matter are discussed with a velocity comparable to velocity of light. Students learn the Einstein's modification on the concept of space-time, through special theory of relativity.</li> <li>7. The students study in this course, the Physics of immobile charges and charges in motion (electro-statics and electro-dynamics) the students learn different types of waves and oscillations, viz., acoustical as well as electro-magnetic. They are told that how the electric and magnetic waves, obeying Maxwell's fundamental equations, are realized as optical light waves. One explains the behavior of light through Ray-optics, wave-optics. The modern advances of applied optics in the line of LASER and Holography are discussed here.</li> <li>8. The motion of the electrons inside doped semiconductors and different kinds of junctions has important applications in the cutting-edge technology. The students learn about them, through their course on analog and digital electronics.</li> <li>9. Kinetic Theory, Thermodynamics and Statistical mechanics are three approaches of thermal physics. Students learn their differences. They are familiarized on the different statistics, the identical system of particles obey, like Maxwell-Boltzmann, Bose-Einstein and Fermi-Dirac.</li> <li>10. The sub-atomic particles like electron, protons and neutrons obey principles of physics; those are discussed in the course of atomic, molecular and nuclear physics. Physics students learn that, all these small quantum particles follow different mechanics during its motion, known as Quantum Mechanics</li> </ol>

  
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