

## Program Learning Outcomes in B.Sc (Honours) Physics

The student graduating with the Degree B.Sc (Honours) Physics should be able to

- Acquire
  - (i) a fundamental/systematic or coherent understanding of the academic field of Physics, its different learning areas and applications in basic Physics like Astrophysics, Material science, Nuclear and Particle Physics, Condensed matter Physics, Atomic and Molecular Physics, Mathematical Physics, Analytical dynamics, Space science, and its linkages with related disciplinary areas/subjects like Chemistry, Mathematics, Life sciences, Environmental sciences, Atmospheric Physics, Computer science, Information Technology;
  - (ii) procedural knowledge that creates different types of professionals related to the disciplinary/subject area of Physics, including professionals engaged in research and development, teaching and government/public service;
  - (iii) skills in areas related to one's specialization area within the disciplinary/subject area of Physics and current and emerging developments in the field of Physics.
- Demonstrate the ability to use skills in Physics and its related areas of technology for formulating and tackling Physics-related problems and identifying and applying appropriate physical principles and methodologies to solve a wide range of problems associated with Physics.
- Recognize the importance of mathematical modeling simulation and computing, and the role of approximation and mathematical approaches to describing the physical world.
- Plan and execute Physics-related experiments or investigations, analyze and interpret data/information collected using appropriate methods, including the use of appropriate software such as programming languages and purpose-written packages, and report accurately the findings of the experiment/investigations while relating the conclusions/findings to relevant theories of Physics.
- Demonstrate relevant generic skills and global competencies such as
  - (i) problem-solving skills that are required to solve different types of Physics-related problems with well-defined solutions, and tackle open-ended problems that belong to the disciplinary- area boundaries;

- (ii) investigative skills, including skills of independent investigation of Physics-related issues and problems;
  - (iii) communication skills involving the ability to listen carefully, to read texts and research papers analytically and to present complex information in a concise manner to different groups/audiences of technical or popular nature;
  - (iv) analytical skills involving paying attention to detail and ability to construct logical arguments using correct technical language related to Physics and ability to translate them with popular language when needed;
  - (v) ICT skills;
  - (vi) personal skills such as the ability to work both independently and in a group.
- Demonstrate professional behavior such as
    - (i) being objective, unbiased and truthful in all aspects of work and avoiding unethical, irrational behavior such as fabricating, falsifying or misrepresenting data or committing plagiarism;
    - (ii) the ability to identify the potential ethical issues in work-related situations;
    - (iii) appreciation of intellectual property, environmental and sustainability issues; and
    - (iv) promoting safe learning and working environment.





## Skill Enhancement Course (SEC) for B.Sc. (Hons.) and B.Sc. Regular

S. No.		SEC -I	SEC -II	SEC -III	SEC -IV
1	Fundamental understanding of the field	X	X	X	X
2	Application of basic Physics concepts	X	X	X	X
3	Linkages with related disciplines	X	X	X	X
4	Procedural knowledge for professional subjects	-	X	X	X
5	Skills in related field of specialization	-	-	-	X
6	Ability to use in Physics problem	-	X	X	-
7	Skills in Mathematical modeling	-	X	-	-
8	Skills in performing analysis and interpretation of data	X	X	X	X
9	Develop investigative Skills	X	-	-	-
10	Skills in problem solving in Physics and related discipline	-	X	-	X
11	Develop Technical Communication skills	-	X	X	X
12	Developing analytical skills and popular communication	-	X	X	-
13	Developing ICT skills	-	X	-	-
14	Demonstrate Professional behaviour with respect to attribute like objectivity, ethical values, self reading, etc	X	X	X	X