

Course Outcomes- B.Sc. (With Physics)

Department Name: Physics

S. No.	Paper Code	Paper name	Category	Learning Outcome
			DSC, DSE, SEC	
YEAR I				
1.	PHYS101TH	Mechanics	DSC-1	The course will introduce: Coordinate systems, Relative motion. Inertial and non inertial frames of references. Centre of mass, inertia and collision. Theory of relativity and inverse square force field
2.	PHYS101PR	Mechanics Lab	DSC-I	Students will develop laboratory skills of mechanics experiments, enabling them to take measurements in using various instruments of laboratory and analyze the measurements to draw valid conclusions.
3.	PHYS102TH	Electricity, Magnetism & EMT	DSC-IV	The course provides knowledge of electromagnetism, circuits, induction and E.M wave. Students have to solve the problems related to these
4.	PHYS102PR	Electricity, Magnetism & EMT Lab	DSC-IV	Students will develop laboratory skills to connect the various electric circuits, and take measurements using various instruments of laboratory and analyze the measurements to draw valid conclusions.
YEAR II				
5.	PHYS201TH	Statistical & Thermal Physics	DSC-VII	This course describes the statistical nature of concepts and laws in thermodynamics Use the statistical physics methods, such as Boltzmann distribution, Fermi-Dirac and Bose-Einstein distributions to solve problems in some physical systems. . and make connections between applications of general statistical theory in various branches of physics.
6.	PHYS201PR	Statistical & Thermal Physics Lab	DSC-VII	In this course students learn to set up, and carry out experiments; analyze data recognize and account

				for errors, and compare with theoretical predictions.
7.	PHYS202TH	Waves & Optics	DSC-X	This course provides students with an understanding of optical phenomena based on the wave description of light. The principles of polarization, interference and diffraction
8.	PHYS202PR	Waves & Optics lab	DSC-X	In this course students learn to set up, carry out experiments of optics, record data, plot graphs, analyze data ,extract relevant information, recognize and account for errors, and compare with theoretical predictions.
9.	PHYS204TH	Computational Physics	SEC-1	This course provides an introduction to computational methods in solving problems in physics. It teaches programming language Fortran, LaTeX. Use of spreadsheet in Physics and introduction to visualization tool GNUplot
10.	PHYS205TH	Electrical Ckts &Network Skills	SEC-2	This course provides a comprehensive understanding of electronic devices and circuits
YEAR III				
11.	PHYS301TH	Elements of Modern Physics	DSE-1	This course gives an overview of physics concepts developed after 1900. Students will learn quantization of charge photoelectric effect, and Compton scattering wave-particle duality, uncertainty principle quantum problems including the quantum particle in a box, a well, the simple harmonic oscillator, and the transmission and reflection of waves and nuclear energy
12.	PHYS301PR	Elements of Modern Physics Lab	DSE-1	Course will develop general experimental and measurement skills analyzing experimental data and their level of uncertainty, and relating the experimental results with theoretical expectations related to modern physics experiment
13.	PHYS302TH	Nuclear & Particle Physics	DSE-2	The course gives an overview of modern nuclear and particle physics, emphasizing fundamental concepts and processes. Different forms of

				radioactivity and account for their occurrence, nuclear synthesis fission and fusion processes, classification of elementary particles according to their quantum numbers are discussed
14.	PHYS307	Radiation Safety	SEC-3	Classify radiation and radioactivity, its properties, units of measurement Identify the biological effects of radiation and its application for radiation safety and for radiation treatment
15.	PHYS310	Renewable Energy & Energy harvesting	SEC-4	This course provides an overview of the energy, energy type, renewable and non renewable sources of energy and explains the various energy power plants and production of electricity.

B.SC. Pass Course (With Physics)

Program Specific Outcomes

After doing this course learners will be able to

- Have a rigorous understanding of core theories, principles and concepts of Mechanics, Electromagnetism, Quantum Mechanics, Statistical & Thermal physics, Wave & Optics Computational physics, Nuclear & Particle physics.
- Apply the conceptual knowledge to analyze a variety of physical phenomena and relate it to real life.
- Apply critical reasoning skills to model and solve physics related problems
- Demonstrate the ability to translate a physical description using a mathematical equation, and conversely, explain the physical meaning of the mathematical equation
- Represent key aspects of physics through graphs and diagrams
- Design and conduct experiments demonstrating their understanding of the scientific method and processes.
- Demonstrate skill in the collection of data using a various laboratory instruments and in the analysis and interpretation of such data.
- Converse scientific information in oral, written, and graphical formats.
- Demonstrate an understanding of the impact of physics and science on society.