

PHYSICS

Programme Specific Outcomes

Programme offered by the Department	Outcomes
B. Sc Honours Programme	<p>On completion of the Programme, the students would be able to:</p> <p>PSO1: Gain clear understanding and core knowledge in Physics, including premises of Classical Mechanics, Electromagnetic Theory, Quantum Mechanics, Statistical Mechanics etc.</p> <p>PSO2: Develop mathematical expertise required to solve problems and apply analytical methods to interpret and analyse results and thereby draw conclusions.</p> <p>PSO3: Gain expertise in computer programming and hence capability to visualise and analyse various physical phenomena in detail.</p> <p>PSO4: Gain expertise in handling scientific instruments and performing various experiments.</p> <p>PSO5: Develop scientific thinking and research mindedness. The student shall be competent enough to employ his/her scientific understandings, mathematical skills and computer knowledge to excel in various fields of research.</p> <p>PSO6: The student shall be prepared for excelling in the entry examinations of various Universities, or competitive exams like JAM, JEST etc for pursuing their future studies.</p> <p>PSO7: Develop love for Physics, recognise the impact of science and also get acquainted with the recent advancements in the field of Physics.</p> <p>PSO7: Develop confidence and overall improvement in personality required for a successful life.</p>
B. Sc Programme Course (General)	<p>On completion of the Programme, the students would be able to:</p> <p>PSO1: Gain a comprehensive idea about the Subject.</p> <p>PSO2. Handle scientific instruments with ease and be able to confidently perform laboratory experiments.</p> <p>PSO3. Develop logical thinking and scientific mindedness which will not only help them in research, but will also prepare them for pursuing various other jobs in future.</p> <p>PSO4. Develop confidence and overall improvement in personality required for a successful life.</p>

PHYSICS

Course Outcomes

B.Sc Honours Programme

Semester	Course Code	Course Title	Outcomes
I	CC1	Mathematical Physics-I	Gain detailed knowledge of calculus, vector calculus, probability theory, to apply them in understanding and analysing physical phenomena. Development of computational skills leading to be enhanced logical reasoning capabilities.
	CC2	Mechanics	Develop clear idea about motion of bodies under the action of various forces, i.e- the relationship between force, motion and matter. Also gain insight about The Special Theory of Relativity.
II	CC3	Electricity and Magnetism	Develop complete understanding of the laws of Electricity and Magnetism and their interaction and application in real life.
	CC4	Waves and Optics	Understand the physics of waves and develop understanding of wave phenomena like interference, diffraction, polarisation.

III	CC5	Mathematical Physics-II	Demonstrate expertise in solving differential equations and complicated integrals and also apply principles of Fourier series, variational calculus in solving physical problems.
	CC6	Thermal Physics	Develop fundamental understanding of how systems in thermal equilibrium can be described by thermodynamics, kinetical gas theory and basic statistical mechanics.
	CC7	Digital Systems and Applications	Demonstrate clear understanding about digital signals, digital circuits and digital devices like registers, counters etc.
	SEC1	Electrical Circuits and Network	Gain detailed knowledge of electrical circuits, its various active and passive components and their functioning, generators and transformers, electrical protection and wiring. The student will be well equipped to deal with electrical circuits in practical life.
IV	CC8	Mathematical Physics-III	Acquire sufficient understanding of Integrals transforms, complex analysis, matrices and be able to apply them to analyse various physics problems.
	CC9	Elements of Modern Physics	Know about the basic principles in the development of modern physics and understand the intuitive ideas of Relativity, Quantum Physics and Nuclear Physics.
	CC10	Analog Systems and Applications.	Develop understanding of active and passive electronic components of circuits. Have thorough knowledge of semiconductors, diodes, transistors and amplifiers.
	SEC2	Renewable Energy and Energy harvesting	Know about the various renewable energy resources and harvesting methods.
V	CC11	Quantum Mechanics and Applications.	Develop understanding about the basics of Quantum Mechanics, and its applications to gain deeper insights of matter and energy at atomic and sub-atomic levels.
	CC12	Solid State Physics.	Develop fundamental insight about solid state physics thereby understanding the structure, bond types and various mechanical properties of matter at the very intrinsic level.
	DSE1	Advanced Mathematical Physics-I	Demonstrate expert understanding of mathematical concepts like integral

			transforms, linear vector spaces, tensors and applying them to solve physics problems.
	DSE2	Classical Dynamics	Understand important topics of classical dynamics including coupled oscillation, relativity, fluid dynamics and further develop critical thinking and problem solving skills.
VI	CC13	Electromagnetic Theory	Summarize the concepts of electrodynamics & to derive and discuss the Maxwell's equations. Students are expected to develop understanding of Electromagnetic wave propagation and wave polarization.
	CC14	Statistical Mechanics	Be familiar with the connection between statistics and thermodynamics, be able to differentiate between different ensemble theories used to explain the behaviour of the Systems, develop clear understanding of the classical and quantum theory of radiation and be able to explain the statistical behaviour of ideal Bose and Fermi systems.
	DSE3	Advanced Mathematical Physics-II	Develop understanding of advanced mathematical concepts like group theory, advanced probability theory, calculus of variations to adequately deal with complicated problems of physics.
	DSE4	Nuclear and Particle Physics	Develop a comprehensive idea about the concepts and methods of nuclear and particle physics thereby gaining insight and curiosity about how modern science tries to answer the big questions of the universe.
I / III	GE Paper 1	Mechanics	Gain deep understanding about the motion and configuration of objects, from the study of vectors, laws of motion, momentum, energy, rotational motion, gravitation, elasticity and special relativity.
II / IV	GE Paper 2	Electricity and Magnetism	Know about basic principles of electrostatics, magnetism and electromagnetic waves.

B.Sc Programme (General)

Semester	Course Code	Course Title	Outcomes
I	DSC1	Mechanics	Gain deep understanding about the motion and configuration of objects, from the study of vectors, laws of motion, momentum, energy, rotational motion, gravitation, elasticity, etc.
II	DSC2	Electricity and Magnetism	Know about basic principles of electrostatics, magnetism and electromagnetic waves.
III	DSC3	Thermal Physics & Statistical Mechanics	Develop fundamental understanding of thermodynamics, kinetical gas theory and basic statistical mechanics.
IV	DSC4	Waves & Optics	Understand the physics of waves and develop basic understanding of wave phenomena like interference, diffraction, polarisation.
V	DSE1	Nuclear & Particle Physics	Develop an idea about the concepts and methods of nuclear and particle physics thereby gaining insight into the physics of subatomic particles.
VI	DSE2	Solid State Physics	Develop fundamental insight about solid state physics thereby understanding the structure, bond types and various mechanical properties of solid matter at the very intrinsic level.
III / V	SECP1	Electrical Circuits and Network	Gain detailed knowledge of electrical circuits, its various active and passive components and their functioning, generators and transformers, electrical protection and wiring. The student will be well equipped to deal with electrical circuits in practical life.
IV / VI	SECP2	Renewable Energy and Energy harvesting	Know about the various renewable energy sources and harvesting methods.