

Department: PHYSICS
Programme Specific Outcomes

Programme offered by the Department	Outcomes
B.A/B.SC MAJOR	<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>PSO8: Develop confidence and overall improvement in personality required for a successful life.</p>
B.A/B.SC MINOR	<p>On completion of the programme, the students would be able to:</p> <p>PSO1: Gain a comprehensive idea about the core topics in Physics.</p> <p>PSO2: Develop broad knowledge in Physics to supplement his/her understanding in the Major course.</p> <p>PSO3: Handle scientific instruments with ease and be able to confidently perform laboratory experiments.</p> <p>PSO4: 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>PSO5: Develop confidence and overall improvement in personality required for a successful life.</p>
B.A/B.SC MDC	<p>On completion of the programme, the students would be able to:</p> <p>PSO1: Gain a comprehensive idea about the core topics in Physics like Mechanics, Electricity & Magnetism, Optics, Thermal Physics, etc.</p> <p>PSO2: Handle scientific instruments with ease and be able to</p>

	<p>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 love for Physics, recognise the impact of science and also get acquainted with the recent advancements in the field of Physics.</p> <p>PSO5: The student shall be prepared for excelling in the entry examinations of various Universities, or competitive exams for pursuing their future studies/job.</p> <p>PSO6: Develop confidence and overall improvement in personality required for a successful life.</p>
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Course Outcomes

B.A/B.SC MAJOR			
Semester	Course Code	Course Title	Outcome
I	PHYSMAJ101	Mathematical Physics-I	<ol style="list-style-type: none"> 1. Gain detailed knowledge of calculus, vector calculus, probability theory. 2. To apply them in understanding and analysing physical phenomena. 3. Development of computational and numerical skills. 4. Leading enhanced logical and reasoning capabilities.
	PHYSMAJ102	Mechanics	<ol style="list-style-type: none"> 1. Develop clear idea about motion of bodies under the action of various forces 2. Also gain insight about The Special Theory of Relativity. 3. Application of theoretical ideas into practical situations through experiments. 4. Apply physical theories to day-to-day life.
II	PHYSMAJ203	Electricity and Magnetism	<ol style="list-style-type: none"> 1. To have clear ideas about electricity and magnetism as physical phenomena. 2. To understand electromagnetic fields and potentials and their interaction with matter. 3. To understand the nature of electromagnetic wave as a building block of modern civilization. 4. To grasp the usage of electricity and magnetism phenomena to human life.
	PHYSMAJ204	Waves and Optics	<ol style="list-style-type: none"> 1. To develop an understanding of optical phenomena as observed in nature. 2. To understand the physics of waves and develop understanding of wave phenomena like interference, diffraction, polarisation. 3. To develop understanding the acoustical phenomena of day to day objects and surroundings.
III	PHYSMAJ305	Mathematical Physics-II	<ol style="list-style-type: none"> 1. Gain detailed knowledge of Fourier series, series solution, special functions, special integrals and

			<p>partial differential equations.</p> <p>2. To gain physical insight into different systems with the help of above mathematical tools.</p> <p>3. Development of computational and numerical skills.</p>
	PHYSMAJ306	Thermal Physics	<p>1. Develop fundamental understanding of systems in thermal equilibrium and heat transfer.</p> <p>2. To gain detailed knowledge of thermodynamics and its application in day to day life.</p> <p>3. To understand kinetic theory of gases and to develop knowledge of characteristics of gases.</p>
IV	PHYSMAJ407	Quantum Mechanics	<p>1. Develop understanding about the basics of Quantum Mechanics.</p> <p>2. To understand the nature of interaction between matter and energy at the atomic and subatomic level.</p> <p>3. To appreciate the explosion of technological progress pioneered by the quantum theory.</p>
	PHYSMAJ408	Classical Mechanics	<p>1. To understand concepts of mechanics with the help of advanced ideas like constraints, virtual work, Lagrange's equations, Hamilton's equations.</p> <p>2. To understand the motion of bodies using the principle of least action.</p>
V	PHYSMAJ509	Analog Electronics	<p>1. Develop understanding of active and passive electronic components of circuits.</p> <p>2. Develop a theoretical understanding of the properties of semiconductors.</p> <p>3. Have thorough knowledge of diodes, transistors, amplifiers and oscillators.</p>
	PHYSMAJ510	Mathematical Physics III	<p>1. Acquire sufficient understanding of Integral transforms, complex analysis, and matrices.</p> <p>2. Implement the mathematical tools to analyse various physics problems.</p>
	PHYSMAJ511	Atomic Physics	<p>1. Know about the basic principles in the development of modern physics.</p> <p>2. Apply quantum mechanics to understand basic physics of atomic phenomena and spectroscopy.</p>
	PHYSMAJ512	Solid State Physics	<p>1. To understand the nature and physics of condensed matter.</p> <p>2. Develop fundamental insight about the structure, bond types and various mechanical properties of matter at the very intrinsic level.</p> <p>3. Application of the principles of solid state physics for the development of materials science.</p>
VI	PHYSMAJ613	Electromagnetic Theory	<p>1. Develop the physical understanding behind the Maxwell's equations.</p> <p>2. To understand the physics of electromagnetic waves and wave propagation.</p> <p>3. Understanding various application of Electromagnetic wave propagation and wave polarization in daily life.</p>
	PHYSMAJ614	Statistical Mechanics	<p>1. Be familiar with the connection between statistics and thermodynamics.</p>

			<ol style="list-style-type: none"> 2. Students would be able to differentiate between different ensemble theories used to explain the behaviour of the systems. 3. Develop clear understanding of the classical and quantum theory of radiation 4. Students would be able to explain the statistical behaviour of ideal Bose and Fermi systems.
	PHYSMAJ615	Digital Electronics	<ol style="list-style-type: none"> 1. To understand Boolean logic. 2. Develop Boolean logic circuits using active and passive electronic components. 3. Demonstrate clear understanding about digital signals, digital circuits and digital devices like registers, counters etc.
	PHYSMAJ616	Nuclear and Particle Physics	<ol style="list-style-type: none"> 1. Develop a comprehensive idea about the nucleus of an atom. 2. Develop concepts and methods of nuclear Physics and particle physics. 3. Gaining insight about how modern science tries to answer the big questions of the universe.

B.A/B.SC MINOR			
Semester	Course Code	Course Title	Outcome
I	PHYSMIN101	Mechanics	<ol style="list-style-type: none"> 1. Develop clear idea about motion of bodies under the action of various forces 2. Also gain insight about The Special Theory of Relativity. 3. Application of theoretical ideas into practical situations through experiments. 4. Apply physical theories to day-to-day life.
II	PHYSMIN202	Electricity and Magnetism	<ol style="list-style-type: none"> 1. To have clear ideas about electricity and magnetism as physical phenomena. 2. To understand electromagnetic fields and potentials and their interaction with matter. 3. To understand the nature of electromagnetic wave as a building block of modern civilization. 4. To grasp the usage of electricity and magnetism phenomena to human life.

III	PHYSMIN303	Waves and Optics	<ol style="list-style-type: none"> 1. To develop an understanding of optical phenomena as observed in nature. 2. To understand the physics of waves and develop understanding of wave phenomena like interference, diffraction, polarisation. 3. To develop understanding the acoustical phenomena of day to day objects and surroundings.
IV	PHYSMIN404	Thermal Physics	<ol style="list-style-type: none"> 1. Develop fundamental understanding of systems in thermal equilibrium and heat transfer. 2. To gain detailed knowledge of thermodynamics and its application in day to day life. 3. To understand kinetic theory of gases and to develop knowledge of characteristics of gases.
V	PHYSMIN505	Electronics	<ol style="list-style-type: none"> 1. Develop understanding of active and passive electronic components of circuits. 2. Develop a theoretical understanding of the properties of semiconductors thus having thorough knowledge of diodes, transistors, amplifiers and oscillators. 3. To understand Boolean logic. 4. Develop Boolean logic circuits using active and passive electronic components.
VI	PHYSMIN606	Quantum Mechanics	<ol style="list-style-type: none"> 1. Develop understanding about the basics of Quantum Mechanics. 2. To understand the nature of interaction between matter and energy at the atomic and subatomic level. 3. To appreciate the explosion of technological progress pioneered by the quantum theory.

B.A/B.SC MDC (DSC Papers)			
Semester	Course Code	Course Title	Outcome
I	PHYSDSC101	Mechanics	<ol style="list-style-type: none"> 1. Develop clear idea about motion of bodies under the action of various forces 2. Also gain insight about The Special Theory of Relativity. 3. Application of theoretical ideas into practical situations through experiments. 4. Apply physical theories to day-to-day life.
II	PHYSDSC202	Electricity & Magnetism	<ol style="list-style-type: none"> 1. To have clear ideas about electricity and magnetism as physical phenomena. 2. To understand electromagnetic fields and potentials and their interaction with matter. 3. To understand the nature of electromagnetic wave as a building block of modern civilization. 4. To grasp the usage of electricity and magnetism phenomena to human life.
III	PHYSDSC303	Waves & Optics	<ol style="list-style-type: none"> 1. To develop an understanding of optical phenomena as observed in nature. 2. To understand the physics of waves and develop understanding of wave phenomena like interference, diffraction, polarisation. 3. To develop understanding the acoustical phenomena of day to day objects and surroundings.
IV	PHYSDSC404	Thermal Physics	<ol style="list-style-type: none"> 1. Develop fundamental understanding of systems in thermal equilibrium and heat transfer. 2. To gain detailed knowledge of thermodynamics and its application in day to day life. 3. To understand kinetic theory of gases and to develop knowledge of characteristics of gases.
V	PHYSDSC505	Electronics	<ol style="list-style-type: none"> 1. Develop understanding of active and passive electronic components of circuits. 2. Develop a theoretical understanding of the properties of semiconductors thus having thorough knowledge of diodes, transistors, amplifiers and oscillators. 3. To understand Boolean logic. 4. Develop Boolean logic circuits using

			active and passive electronic components.
	PHYSDSC506	Quantum Mechanics	<ol style="list-style-type: none"> 1. Develop understanding about the basics of Quantum Mechanics. 2. To understand the nature of interaction between matter and energy at the atomic and subatomic level. 3. To appreciate the explosion of technological progress pioneered by the quantum theory.
VI	PHYSDSC607	Solid State Physics	<ol style="list-style-type: none"> 1. To understand the nature and physics of condensed matter. 2. Develop fundamental insight about the structure, bond types and various mechanical properties of matter at the very intrinsic level. 3. Application of the principles of solid state physics for the development of materials science.
	PHYSDSC608	Nuclear Physics	<ol style="list-style-type: none"> 1. Develop a comprehensive idea about the nucleus of an atom. 2. Develop concepts and methods of nuclear Physics and particle physics. 3. Gaining insight about how modern science tries to answer the big questions of the universe.