

**PROGRAM AND COURSE OUTCOME
OF THE DEPARTMENT OF PHYSICS, SCHOOL OF SCIENCES**

NAME OF DEPARTMENT	NAME OF PROGRAM offered	Number of Program Number of courses in Program
	1- B.Sc. PHYSICS	12
	2- M.Sc. PHYSICS	28
	3- Ph.D. PHYSICS	09

NAME OF PROGRAM	PROGRAM OUTCOME	PROGRAM SPECIFIC OUTCOME	NAME OF COURSE	COURSE OUTCOME
B.Sc. Physics	To understand the basic laws and explore the fundamental concepts of physics	After Graduation the student may opt for various competitive exams. To get higher jobs (ICS, IFS, PCS)	Core Papers Semester-I 1-Mechanics Mechanics Lab Semester-II 2- Electricity & Magnetism Electricity & Magnetism Lab Semester-III 3- Thermal Physics & Statistical Mechanics Thermal Physics & Statistical Mechanics Lab Semester-IV 4-Wave & Optics Wave & Optics Lab	+To understand the concepts and significance of the various physical phenomena +To carry out experiments to understand the laws and concepts of physics To apply the theories learnt and the skills acquired to solve real time problems
			Elective Papers Semester-V	+To acquire a wide range of problem-solving skills, both

			(any one) 1- Elements of Modern Physics Elements of Modern Physics Lab 2- Solid State Physics Solid State Physics Lab	analytical and technical and to apply them
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B.Sc. Physics			Semester-VI (any one) 3- Quantum Mechanics Quantum Mechanics Lab 4- Mathematical Physics Mathematical Physics Lab	+To enhance the student's academic abilities, personal qualities and transferable skills this will give them an opportunity to develop as responsible citizens. •To produce graduates who excel in the competencies and values required for leadership to serve a rapidly evolving global community.
			Skill Enhancement Course (any one each Sem.) Semester-V 1- Electronics I 2- Computational Physics Semester-VI 3- Electronics II 4- Radiation and Safety	+To motivate the students to pursue PG courses in reputed institutions. +This course introduces students to the methods of experimental physics. Emphasis will be given on laboratory techniques specially the importance of

				<p>accuracy of measurements.</p> <p>•Providing a hands-on learning experience such as in measuring the basic concepts in properties of matter, heat, optics, electricity and electronics.</p>
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NAME OF PROGRAM	PROGRAM OUTCOME	PROGRAM SPECIFIC OUTCOME	NAME OF COURSE	COURSE OUTCOME
M.Sc. (PHYSICS)	To understand the basic laws and explore the fundamental concepts of physics	After Post Graduation the student may opt for various competitive exams. To get higher jobs (ICS, IFS, PCS) and research	<p>Core Papers</p> <p>Semester I</p> <p>1-Classical Mechanics: 2- Mathematical Physics 3-Electrodynamics & Astrophysics 4-Electronics 5- Lab Course I & II</p> <p>Semester II</p> <p>6- Atomic and Molecular Physics 7- Solid State Physics 8- Statistical Physics 9- quantum mechanics 10- Lab Course I & II</p> <p>Semester III</p> <p>11- Advanced Quantum Mechanics 12- Nuclear Physics 13- Lab Course I (General) 14- Lab Course II (Circuit</p>	<p>+The Master of Science in Physics programme provides the candidate the required knowledge, general competence, and analytical skills on an advanced level, needed in industry, consultancy, education, research, or in public administration.</p> <p>+The students would gain substantial knowledge in various branches of physics: Electronics, Quantum, classical, statistical mechanics, condensed matter physics, astrophysics, particle, nuclear and high energy Physics</p> <p>• Would learn use of mathematical tools in solving complex physical problems and have the solid background and experience required to</p>

			Design) Semester IV 15-Computational Physics: 16- Particle Physics: 17-lab course I 18-Lab Course II-Project	model, analyze, and solve advanced problems. in physics. +This course would empower the student to acquire scientific and engineering skills and the required practical knowledge by performing experiments In general physics and electronics.
			Elective Papers (any two) Semester III 1- Condensed Matter Physics A 2- Electronics A 3- Laser Physics A: 4- High Energy Physics A 5- Astrophysics A:	+Would also get some research oriented experience by doing theoretical and experimental projects in the last semester under the supervision of faculty

M.Sc. (PHYSICS)			Elective Papers (any two) Semester IV 6- Condensed Matter Physics B 7-Electronics B: 8- Laser Physics B 9-High Energy Physics B 10- Astrophysics B	+The course as a whole opens up several career doors for the students interested in various areas of science and technology in private, public and government sectors. +Students may get job opportunities in higher education, research organizations, physics consultancy, radiology, radiation oncology and
			Self Study (Any one of the following) 1- Environmental Physics: 2- Physics Of Liquid Crystals: 3- Atmospheric	

			Physics: 4- Bio Physics: 5-Quantum Electrodynamics	many others. Some of the institutions where physics students can start their carrier are BARC, DRDO, NPTC, SC, ISRO, ONGC, BHEL, PRL, NPL, SINP, VECC, IITS, NITS, IPR etc.
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NAME OF PROGRAM	PROGRAM OUTCOME	PROGRAM SPECIFIC OUTCOME	NAME OF COURSE	COURSE OUTCOME
Ph.D. (PHYSICS)			Core Course	
			1-Research Methodology	++The scholar will get an basic understanding of the idea of research, work, i.e. the basic tools. of research. These are XRD, UV and Raman spectroscopy, NMR, Gamma ray spectrometer. Nuclear counter. These are most important experimental techniques for research.
			2-Research & Publication Ethics and Computational Methods	++In this course, scholar will learn the very necessary things about research i.e., ethics, Scientific Conduct, Philosophy, publication ethics, Publication, open access publishing Data base, publication misconduct etc.
			Elective Course (Any two)	
			1-Mathematical Physics	++ In this course scholar will get the practices of mathematical approaches which will help them

				<p>doing theoretical research in the subject. Differential equations, transforms Matrices and Tensors & Numerical methods.</p>
			2-Material Science	<p>In this paper, scholar will learn about. crystal growth method, Nanomaterials, Biomaterials, and Electron microscopy methods.</p>
			3-Condensed Matter Physics	<p>In this paper scholar will learn thermal, electrical properties of solids, Imperfections in solids, superconductivity, and Dielectric and ferroelectric solids.</p>
			4-Laser Physics	<p>In this paper, scholar will learn different lasers, Laser spectroscopy and optical sources and detectors as well as fiber optical. materials.</p>
			5-Astro Physics	<p>In this paper, scholar will get knowledge of various stellar objects, stars, clusters galaxies etc. They will get basic understanding of astrophysics so that they can do research in this branch.</p>
			6-Particle Physics and string theory	<p>In this paper, scholar will get an idea of particle physics, Lorentz invariance basics of string theory. These ideas will help them in their research in this area</p>
			7-Quantum Field Theory	<p>In this paper scholars will get knowledge of basics of quantum field theory, such as quantization of fields, QED, QCD and other important things.</p>

				After study they will be able to do research in this area.
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