MANIPAL UNIVERSITY
JAIPUR

Master of Science (M. Sc.)

PHYSICS

Admission 2024-25

About the program

The 2-Year Master of Science (Physics) Program of the Physics Department, Manipal University Jaipur is designed to give equal emphasis on classroom teaching as well as laboratory training.

Students have the option of specialisation in advanced topics like Solid State Electronics, Nuclear Physics, Nano-technology and High energy Physics. Students are also required to undertake a project in frontier research areas in the fourth semester.This will train students in making a research career.

The courses are designed as per UGC Model curricula. The unique course structure blends all that is best in the areas of contemporary and applied physics to prepare post-graduate students who are well versed with science and technology.

More about the Department
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Key Highlights of the Program

- Contemporary topics like Nanotechnology have been introduced in the undergraduate and postgraduate courses. The department is equipped with state-of-art PG labs, and a well-equipped laboratory to cater the first-year students of all engineering programs
- Workshops, symposium, and training sessions are arranged to enable students to learn and interact with scientists and researchers from all around the country on different specialised topics in physics
- PG curriculum include courses like computer programming lab, numerical analysis, C/C++ programming which are important for the students to grow academically as researchers
- PG theory courses are designed as per the UGC Model curricula for Physics which will help the students to qualify NET/GATE examination required for availing scholarships.

Unique Research and Lab Facilities

- The adept faculty members having teaching as well as research experiences and are associated with a lot of research activities, often in collaboration with eminent scientists from different parts of the globe.
- The thrust areas of the Department are Material Science, including Bio nanomaterials and Nanotechnology.
- The department has state-of-the-art laboratory facility to support synthesis and characterization of advanced Nanomaterials.
- The material synthesis and processing equipment includes dip coater, spincoater, microwave synthesizer, ball mill, annealing furnace, ultra-high-speed centrifuge etc. Besides, the department have acquired a glancing angle deposition (GLAD) system for the thermal deposition of 1-D nanomaterials.
- Major characterization system includes a source measure unit for I-V measurement of nanodevices, a high precision Hall measurement system and surface plasmon resonance (SPR) measurement system
- The department has accesses to most of the modern systems of material characterization like Field effect Microscope (FESEM), X-ray Diffraction (XRD), UV-Visible Spectroscopy, Photoluminescence (PL) spectroscopy, Thermo Gravimetric Analysis (TGA), Fourier Transform Infrared (FTIR) spectroscopy etc.

National and International Collaborations

National

- Dr. Sandeep Chowdhary, Dept of Chemistry, MNIT, Jaipur
- Dr Mahesh Chahar, Dept. of Electrical Engineering, IIT Jodhpur
- Dr Dileep Kumar, Scientist F, UGC DAE CSR, Indore
- Prof. S. N. Dolia, Department of Physics, University of Rajasthan, Jaipur
- Dr. Gaurav Saxena, Government Women Engineering college, Ajmer.
- Dr. Balram Tripathi, S. S. Jain Subodh PG College Jaipur
- Dr. Rama Kanwar, Asst Prof., Dept of Chemistry, Mohan Lal Sukhadiya University, Udaipur
- Dr. P.D. Babu, Scientist D, UGC-DAE Mumbai
- Prof. Ashok Rao, Department of Physics, MIT, Manipal Academy of Higher Education
- Dr. Kiran Subhedar, National Physical Laboratory, Delhi
- Dr. S. P. Singh, National Physical Laboratory, Delhi
- Dr. Prem Pal, Indian Institute of Technology Hyderabad
- Centre for Research in Nanoscience and Nanotechnology, Salt Lake Campus, University of Calcutta
- Dr. Aniruddha Mondal, Department of Physics, NIT Durgapur
- Dr. Kiran Shankar Hazra, INST Mohali
- Prof. Anil Kumar Gourishetty, Department of Physics, IIT Roorkee.
- Prof. T. Venkatappa Rao, Department of Physics, NIT Warangal.

- Dr. Subhendu Ray Chowdhary, Isotope and Radiation Application Division (IRAD), Bhabha Atomic Research Centre, Mumbai.
- Prof Ayon Bhattacharjee, National Institute Of technology Meghalaya
- Sandip P Choudhary, Amity University Jaipur.
- Prof. M.S Janaki, Saha Institute of Nuclear Physics, Kolkata, India.
- Prof, Manoj K Sharma, Thapar Institute of Engineering, and Technology.
- Prof. P. K. Raina, IIT Ropar.

International

- Prof. Gunther Andersson, Flinders University Adelaide, Australia
- Prof. R D K Misra, The University of Texas at El Paso, USA
- Przemysław Kula PhD, DSc, Faculty of Advanced Technologies and Chemistry, Institute of Chemistry, Military University of Technology, Warsaw – Poland.
- Prof. S.I Mukhin, National University of Science and Technology, Moscow, Russia.
- Dr. S. Seidov, National University of Science and Technology, Moscow, Russia.
- Prof. Q. Jiang, Tsung Dao Lee Institute, Shanghai, China

The MUJ EDGE (Why MUJ)

- Best in-class infrastructure, including the state-of-the-art research facilities and a modern digital library
- NAAC A+, UGC Accredited Institution
- Through qualified teaching professionals who have received their PhD from the globally recognized best institutions and hold rich experience in teaching and research
- The Department of Physics aims to achieve the following outcomes after completion of M Sc course,
  - Create a hypothesis and appreciate how it relates to broader theories.
  - Evaluate hypothesis, theories, methods and evidence within their proper contexts.
  - Critically interpret data, write reports and apply the basics of rules of evidence.
  - Develop proficiency in the analysis of complex physical problems.
  - Provide a systematic understanding of core physical concepts, principles and theories along with their applications.
  - Nurture and develop employability skills through literary studies.
  - Help learners gain knowledge and ideas needed to conduct research in the field of literature
  - Develop the required analytical, critical, and application-oriented skills in physics.
  - Prepare students to take national and international level examination related to the discipline.
  - The department hosts several research projects sponsored by SERB, DST, UGC, DAE, DST Rajasthan and industry.
  - National (IITs, NIT's and research laboratories) and international (Flinders University, Australia and TU Braunschweig, Germany) research collaborations.

Career Opportunities

- A student with physics major can choose to enter the job market in positions such as Scientist, field researcher, production assistant or go on for higher studies to expand his career opportunities within the different advanced topics of physics like Astronomy, Material Science, Bio Physics, Nuclear Physics, Electronics, and Geophysics etc.
- Post Graduate students in Physics who go for higher studies and are interested in careers in academics and research can continue their study for a doctoral degree, after which they may work as professional physicists in industry, universities or government laboratories.

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- The fundamental skills as well as training in practical subjects such as optics, lasers, computer interfacing, image processing and electronics make the Physics Post-graduates very desirable employees in high tech research based companies or Industries and in Government Organizations (like DRDO, ISRO,BARC etc.) as Scientists.

Fee structure

Tution fee (p.a.)	Registration Fee (One Time)	Caution Deposit Refundable (One Time)	Total Course Fees (including Caution Deposit)
1,09,000	10,000	10,000	2,38,000

(International - USD, Total Fee for 3 Years - 5,100)

Eligibility

Candidate must have passed BSc degree from recognized University / Institution or equivalent qualification as recognized by Association of Indian Universities (AIU) or other competent body with minimum of 50% marks in aggregate.

Scholarships

- Tuition Fee Concession for MUJ Graduate
- Scholarships for Local Region Students
- Merit Scholarships

Curriculum (Only Scheme)

Year	FIRST SEMESTER						SECOND SEMESTER					
	Course Code	Course Name	L	T	P	C	Course Code	Course Name	L	T	P	C
I	PY6101	Atomic, Molecular & Laser Physics	2	1	0	3	PY6201	Solid State Physics	3	1	0	4
	PY6102	Mathematical Physics	3	1	0	4	PY6202	Nuclear and Particle Physics	3	1	0	4
	PY6103	Quantum Mechanics	3	1	0	4	MA6205	Research Methodology & Technical Writing	2	1	0	3
	PY6104	Electronics	3	1	0	4	PY6203	Electrodynamics	2	1	0	3
	PY6105	Classical mechanics	3	1	0	4	PY6230	Solid State Physics Lab	0	0	6	3
	PY6130	Electronics lab	0	0	6	3	PY6231	Nuclear Physics Lab	0	0	6	3
							PY6232	Spectroscopy Lab	0	0	4	2
			14	**5**	**6**	**22**			**10**	**4**	**16**	**22**
	Total Contact Hours (L + T + P)		**25**				**Total Contact Hours (L + T + P)**		**30**			
II	**THIRD SEMESTER**						**FOURTH SEMESTER**					
	PY7101	Statistical Mechanics	3	1	0	4	PY7270	Major Project	0	0	0	16
	PY7102	Advanced Quantum Mechanics	3	1	0	4						
	PY7103	Numerical Methods and Programming	3	1	0	4						
	PY7170	Seminar	0	0	4	2						
	PY7130	Computer lab	0	0	4	2						
	******	DSE	3	1	0	4						
			12	**4**	**8**	**20**			**0**	**0**	**0**	**16**
	Total Contact Hours (L + T + P)		**24**				**Total Contact Hours (L + T + P) + OE**		**35**			

Discipline Specific Elective (DSE)
1. PY7140: Fundamentals of Nanoscience
2. PY7141: Radiation Physics

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Admission Process

Application form initiated through our website
admissions.jaipur.manipal.edu

Applicants must submit a completed application form with relevant documents within the due date.

Our counsellors will guide candidates through the admission process, which is as per regulatory requirements.

FAQ

Please visit the FAQ section on our website to know more about the admission process.

Admission Team Contact Details

Hostel Details

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