MANIPAL UNIVERSITY
JAIPUR

Bachelor of Science (B.Sc)

Physics (Hons)

Admission 2024-25

About the program

The honours program trains and awards students with a Bachelor of Science degree after a 3-year period. The main objectives of this curriculum is to teach a wide range of Physics at an intermediate level and foster a creative spirit for learning to become inventive scientists and successful in a wide range of professions, producing graduates who are well grounded in the fundamentals and intermediate level of Physics and acquisition of the necessary skills, in order to use their knowledge in Physics in a wide range of practical application and to acquire discipline-based skills in experimental, mathematical, and computational Physics.

More about the Department
Scan the QR Code

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 UG 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

Unique Research and Lab Facilities

- Adept faculty members having teaching as well as research experience and are associated with a lot of research activities, often in collaboration with eminent scientists from different parts of the globe.
- Thrust areas of the Department are Material Science, including Bio nanomaterials and Nanotechnology.
- 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.
- The department has 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 for measuring plasmonic effects in nanomaterials.
- 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 E, 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. Mukul Gupta, Scientist D, UGC-DAE Indore
- 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

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 andChemistry, Institute of Chemistry, Military University ofTechnology, 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

Career Opportunities

After the completion of this course, the candidates will be well prepared to clear the following exams:

- IIT- JAM – Joint admission test for M. Sc. in IITs
- M. Tech. in nuclear science and technology: DU Delhi (3-year program)
- To study in Abroad
- GRE, TOEFEL, IELTS
- Prior Research Experience or mutual collaboration.

Furthermore on completion of 3 year course, candidates have a wide range of job opportunities in the employment areas like scientist jobs in DRDO, ISRO, CSIR labs and in research and development unit in Industries, power generating and pyrotechnics manufacturing companies, technical journals, Indian civil services, university/college jobs etc. There are also various jobs available like a professor, radiation oncologist, consulting physicist, etc.

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 B Sc (Hons) 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.
  - Will be trained for master's program in Physics.
  - 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.

Fee structure

Tution fee (p.a.)	Registration Fee (One Time)	Caution Deposit Refundable (One Time)	Total Course Fees (including Caution Deposit)
97,000	10,000	10,000	3,11,000

(International - USD, Total Fee for 3 Years - 8,250)

Eligibility

The candidate must have passed 10+2 or A Level or IB with science and/or computer science subjects, with minimum 50% marks in aggregate.

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Scholarships

- TMA Pai Merit Scholarships
- Rajasthan Merit Scholarships
- Financial Assistance for Sibling(s)
- Scholarship for "Differently- abled" Students
- Scholarships for wards of Martyrs of Defence Personnel / Para Military Forces
- Scholarships for the wards of Single Mother & Orphan Child
- Scholarships for Sports Persons
- Scholarships for students of Higher Semesters

Curriculum (Only Scheme)

Year	FIRST SEMESTER						SECOND SEMESTER					
	Sub. Code	Subject Name	L	T	P	C	Sub. Code	Subject Name	L	T	P	C
I	PY1101	Mechanics	3	1	0	4	PY1201	Mathematical Physics-I	3	1	0	4
	PY1102	Waves and Optics	3	1	0	4	PY1202	Electricity and Magnetism	3	1	0	4
	PY1130	General Physics Lab	0	0	4	2	PY1203	Analog Systems and Applications	3	1	0	4
	PY1131	Waves and Optics Lab	0	0	4	2	PY1230	Electricity and Magnetism Lab	0	0	4	2
	LN1106	Communicative English	2	0	0	2	PY1231	Analog Systems and Applications Lab	0	0	4	2
	CY1003	Environmental Science	3	0	0	3	XXXX	**GE-II (A)	3	1	0	4
	CA1170	Fundamentals of Computer	1	1	0	2	XXXX	**GE-II (B)	2	1	0	3
	CA1175	Fundamentals of Computer Lab	0	0	2	1		**GE-II (B) Lab	0	0	2	1
	XXXX	GE-I (A)	2	1	0	3						
	XXXX	GE-I (A) Lab	-	-	2	1						
			14	4	12	24			14	5	10	24
	Total Contact Hours (L + T + P)		30				Total Contact Hours (L + T + P)		29			

Curriculum (Only Scheme)

II	THIRD SEMESTER						FOURTH SEMESTER					
	PY2101	Thermal Physics	3	1	0	4	PY2201	Mathematical Physics-II	3	1	0	4
	PY2102	Digital Systems & Applications	3	1	0	4	PY2202	Quantum Physics and Quantum Mechanics	3	1	0	4
	PY2130	Thermal Physics Lab	0	0	4	2	PY2203	Electro-Magnetic Theory	3	1	0	4
	PY2131	Digital Systems and applications Lab	0	0	4	2	PY2204	Classical Mechanics	3	1	0	4
	PYxxxx	SEC	2	0	0	2	PY2230	Modern Physics Lab	0	0	4	2
	PYxxxx	SEC	2	0	0	2	PY2231	Electro-magnetic Lab	0	0	4	2
	XXXX	**GE-III (A) + Lab	2	1	2	4	PYxxxx	DSE-I	3	1	0	4
	XXXX	**GE-III (B)	3	1	0	4	PY****	Open elective	2	1	0	3*
			15	4	10	24			17	6	8	24+3*=27
	Total Contact Hours (L + T + P)		29				Total Contact Hours (L + T + P)		31			

III	FIFTH SEMESTER						SIXTH SEMESTER					
	PY3101	Atomic and Molecular Physics	3	1	0	4	PY3201	Nuclear and Particle Physics	3	1	0	4
	PY3102	Solid State Physics	3	1	0	4	PY3202	Classical Dynamics	3	1	0	4
	PY3130	Atomic and Molecular Physics Lab	0	0	4	2	PY3276	Seminar	0	0	4	2
	PY3131	Solid State Physics Lab	0	0	4	2	PY3230	Nuclear Physics Lab	0	0	4	2
	PYxxxx	DSE-II	2	1	0	3	PY3250	DSE-IV	2	1	0	3
	PYxxxx	DSE-III	2	1	0	3	PYxxxx	DSE-V	2	1	0	3
	PY3170	Project	0	0	0	6	XXXX	**GE-IV (A)	2	1	0	3
							XXXX	**GE-IV (A) Lab	-	-	2	1
			10	4	8	24	PY***	Open elective	2	1	0	3*
	Total Contact Hours (L + T + P)		22						14	6	10	22+3*=25
							Total Contact Hours (L + T + P)		30			

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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

For Admission
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MANIPAL UNIVERSITY
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