सत्यमेव जयते
Government of Maharashtra

HBSU
Dr. Homi Bhabha State University

Dr. Homi Bhabha State University, Mumbai

The Institute of Science, Mumbai

ESTD 1920

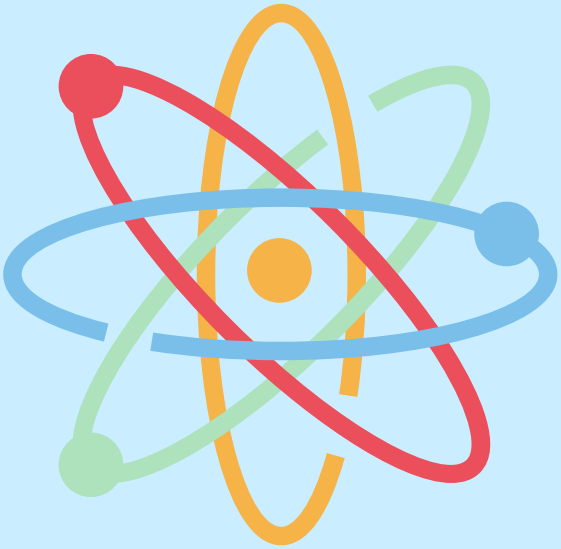
Department of Physics

2025-26

15, Madame Cama Road, Mumbai,
Maharashtra 400032

https://hbsu.ac.in

CONTENT



ABOUT THE DEPARTMENT

The Physics Department at The Institute of Science, Dr. Homi Bhabha State University, Mumbai, offers a dynamic and rigorous MSc program. Our department is equipped with state-of-the-art laboratories and instruments, including XRD, SEM, UV-Vis, and FTIR, providing students with hands-on research experience. We host regular seminars, workshops, and events to foster a collaborative and stimulating academic environment. Our dedicated faculty and diverse research opportunities prepare students for successful careers in academia, industry, and research. Join us to explore the fascinating world of physics and contribute to groundbreaking scientific discoveries. The faculty is not only nurturing the students of the department but also the students of various graduate and post graduate colleges by conducting seminar, hands-on training to utilize advanced characterization techniques along with conducting national and international conferences etc.

A MESSAGE FROM THE HOD

PROF. DR. ROHIDAS B. KALE

Welcome to the Physics Department at The Institute of Science, Dr. Homi Bhabha State University, Mumbai. Our department is committed to fostering academic excellence and innovative research. We offer a vibrant learning environment with state-of-the-art facilities and cutting-edge instruments. Our MSc program is designed to equip students with the knowledge and skills necessary for successful careers in science and technology. We encourage you to join our department, where you will be guided by experienced faculty and engage in pioneering research that pushes the boundaries of physics.

FACULTY MEMBERS

Dr. Kiran Sonawane

Prof. Ajay Chaudhari

Prof. Shrinivas Kulkarni

Prof. Anamika Kadam

Mrs. Savita Dange

Dr. Ravindra Kalesh

Dr. Mahadev Sonwane

ELIGIBILITY CRITERIA

Bachelor's degree in physics or a related field with a minimum of 50% marks. Selection Process for Admission is based on merit

BOARD OF STUDIES

(1) Prof. Ajay Choudhari

(2) Prof. Rohidas Kale

(3) Prof. Shrinivas Kulkarni

(4) Prof. Pravin More

(5) Prof. Anamika Kadam

(6) Mrs. Savita Dange

(7) Dr. Mahadeo Sonawane

(8) Dr. Kiran Sonawane

PROGRAMMES WE OFFER

- MSc in Physics
- PhD in Physics

These programs are designed to provide comprehensive education and research opportunities in various domains of physics, equipping students with advanced knowledge and practical skills for academic and professional success.

KEY FEATURES

State-of-the-Art Laboratories: Equipped with the latest technology and advanced apparatus for cutting-edge research and experiments. Specialized Equipment: Access to high-end instruments such as Scanning Electron Microscopy, Energy Dispersive Spectroscopy, Fourier Transform Infrared Spectroscopy, X-ray Diffraction, Chemical Analyzer, Potentiostat/ Galvanostat, Different Methods to Synthesis Nanomaterials etc. Comprehensive Study Material: Extensive resources including digital libraries, research journals, and custom-designed coursework. Distinguished Faculty: Learn from renowned physicists and researchers with a wealth of academic and industry experience. Research Opportunities: Engage in groundbreaking research projects and collaborations with leading scientific institutions. Modern Facilities: Spacious lecture halls, dedicated research spaces, and advanced computational labs. Interdisciplinary Approach: Integration with other scientific disciplines to foster innovation and holistic learning. Student Support Services: Academic advising, tutoring, and career counseling to guide students throughout their academic journey.

Departmental Instrumentation Facilities

Scanning Electron Microscope with EDS

X-ray Diffraction Machine

UV-Vis-NIR Spectroscopy

FTIR Spectroscopy

Solar Stimulator

Electrochemical Analyzer

CREDIT DISTRIBUTION (NEP)

Paper Title, Paper Code & Distribution of Marks for M.Sc. (Physics) (Semester Pattern)

Sem 1

Semester	Course Code	Course Title	Theory-External Assessment	Internal Assessment*	Practical	Credits	Total Marks
I	MSPHDC101T	Mathematical Physics	60	40	-	4	100
	MSPHDC102T	Classical Mechanics	60	40	-	4	100
	MSPHRM101T	Research Methodology	60	40	-	4	100
	MSPHDE101T MSPHDE102T MSPHDE103T MSPHDE104T	AE-Microwave and Digital Electronics SSP-Thin Film Physics SSE-Semiconductor Devices MS-Fundamentals of Materials Science	60	40	-	4	100
	MSPHLB101P	Lab 1	-	-	50	2	150
	MSPHLB102P	Lab 2	-	-	50	2	
	MSPHDE101P MSPHDE102P MSPHDE103P MSPHDE104P	Lab 3 -AE Lab 3 - SSP Lab 3- SSE Lab 3 -MS	-	-	50	2	
						22	**550**

Sem 2

Semester	Course Code	Course Title	Theory-External Assessment	Internal Assessment*	Practical	Credits	Total Marks
II	MSPHDC201T	Quantum Mechanics	60	40	-	4	100
	MSPHDC202T	Electrodynamics	60	40	-	4	100
	MSPHDE201T MSPHDE202T MSPHDE203T MSPHDE204T	AE-Microprocessor and Programming SSP-Semiconductor Physics SSE-Thin Film: Properties and Techniques MS-Nanoscience and Nanotechnology	60	40	-	4	100
	MSPHLB201P	Lab 4	-	-	50	2	150
	MSPHLB202P	Lab 5	-	-	50	2	
	MSPHDE201P MSPHDE202P MSPHDE203P MSPHDE204P	Lab 6 -AE Lab 6 - SSP Lab 6- SSE Lab 6 -MS	-	-	50	2	
	MSPHOJ201P	OJT/FP		-	100	4	100
						22	**550**

Sem 3

Semester	Course Code	Course Title	Theory-External Assessment	Internal Assessment*	Practical	Credits	Total Marks
III	MSPHDC301T	Solid State Physics and Electronics	60	40	-	4	100
	MSPHDC302T	Atomic and Molecular Physics	60	40	-	4	100
	MSPHDE301T MSPHDE302T MSPHDE303T MSPHDE304T	AE-Microcontroller and its Applications SSP-Physical Properties of Solids SSE- -Semiconductor Technology MS- Application of Materials	60	40	-	4	100
	MSPHLB301P	Lab 7	-	-	50	2	150
	MSPHLB302P	Lab 8	-	-	50	2	
	MSPHDE301P MSPHDE302P MSPHDE303P MSPHDE304P	Lab 9 -AE Lab 9- SSP Lab 9- SSE Lab 9-MS	-	-	50	2	
	MSPHRP301P MSPHRP302P MSPHRP303P MSPHRP304P	Research Project – AE Research Project – SSP Research Project – SSE Research Project - MS			100	4	100
						22	**550**

Sem 4

Semester	Course Code	Course Title	Theory-External Assessment	Internal Assessment*	Practical	Credits	Total Marks
IV	MSPHDC401T	Characterization Techniques	60	40	-	4	100
	MSPHDC402T	Statistical Mechanics and Nuclear Physics	60	40	-	4	100
	MSPHDE401T MSPHDE402T MSPHDE403T MSPHDE404T	AE-Microwave devices and Fiber Optics SSP- -Physics of Nanomaterials SSE- Physics of Semiconductor Devices MS- Properties of Materials	60	40	-	4	100
	MSPHLB401P	Lab 10	-	-	50	2	100
	MSPHDE401P MSPHDE402P MSPHDE403P MSPHDE404P	Lab 11 -AE Lab 11- SSP Lab 11- SSE Lab 11-MS	-	-	50	2	
	MSPHRP401P MSPHRP402P MSPHRP403P MSPHRP404P	Research Project – AE Research Project – SSP Research Project – SSE Research Project - MS			150	6	100
						22	**550**

AE – Applied Electronics

SSP – Solid State Physics

SSE – Solid State Electronics

MS – Material Science

OJT / FP – On Job Training / Field Project

FESTS & EVENTS

The Physics Department at The Institute of Science, Dr. Homi Bhabha State University, Mumbai, is vibrant with a wide range of academic and extracurricular activities. These include: Seminars and Workshops: Regular seminars and workshops featuring renowned speakers from academia and industry. Research Conferences: Annual research conferences where students and faculty present their latest findings. Hands-on Training Sessions: Practical training on advanced instruments like XRD, SEM, TEM, and FTIR.

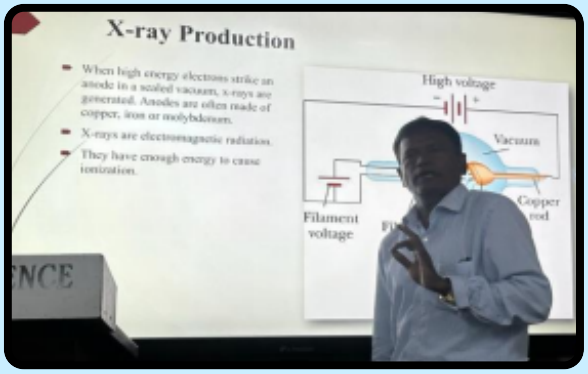
Student Projects: Encouragement and guidance for student-led research projects. Field Trips: Educational trips to research institutes and industrial labs to provide real-world exposure. Guest Lectures: Inviting experts to deliver lectures on emerging topics in physics.

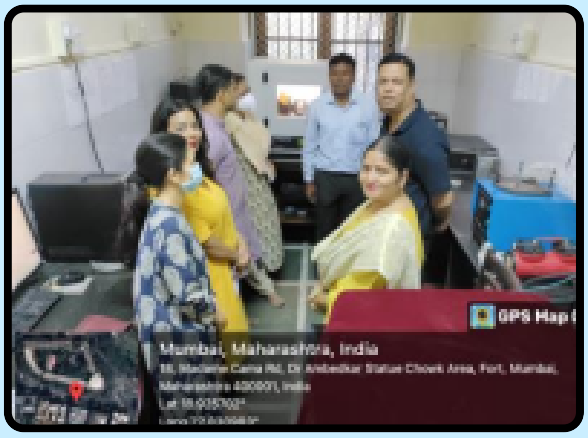
Collaborative Projects: Joint research projects with other departments and institutions. Cultural and Sports Events: Participation in university-wide cultural and sports events to promote overall student development.

Expert Guidance Session on SEM (Scanning Electron Microscope) Instrument

FORENSIC EVIDENCE ANALYSIS BY XRD: HANDS-ON TRAINING, 13TH JANUARY 2024

GLIMPSES OF WORKSHOP





WORKSHOP ON CHARACTERIZATION TECHNIQUES FOR ANALYZING VARIOUS MATERIALS

SEMINAR ON SURFACE ANALYSIS – NEW OPPORTUNITIES FOR ADVANCED MATERIALS CHARACTERIZATION




February 2nd, 2024

ONE DAY HANDS ON TRAINING WORKSHOP ON "CHARACTERIZATION OF NANOMATERIALS AND ILLUSTRATION OF THEIR INNOVATIVE APPLICATIONS". DATE: 27TH JANUARY 2024.

TRANSDISCIPLINARY INTERNATIONAL CONFERENCE ON "SCIENCE AND SUSTAINABLE FUTURE: ENVISIONING INDIA @2024" [ICFEI@2024]

28TH & 29TH FEB, 2024

INTERNSHIP, PLACEMENT & JOB OPPORTUNITIES

At Homi Bhabha Science University, we prioritize the career development of our students through extensive internship, placement, and job opportunities. Our dedicated career services team collaborates with leading companies and research institutions to offer internships that provide practical experience and industry insights. We boast a stron placement record, with our graduates securing positions in top organizations globally. Additionally, our robust alumni network and partnerships with industry leaders ensure a wealth of job opportunities, empowering our students to embark on successful and fulfilling careers. We offer Internships in collaborations with industry, other universities, TIFR, ICT etc.

CONTACT DETAILS

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