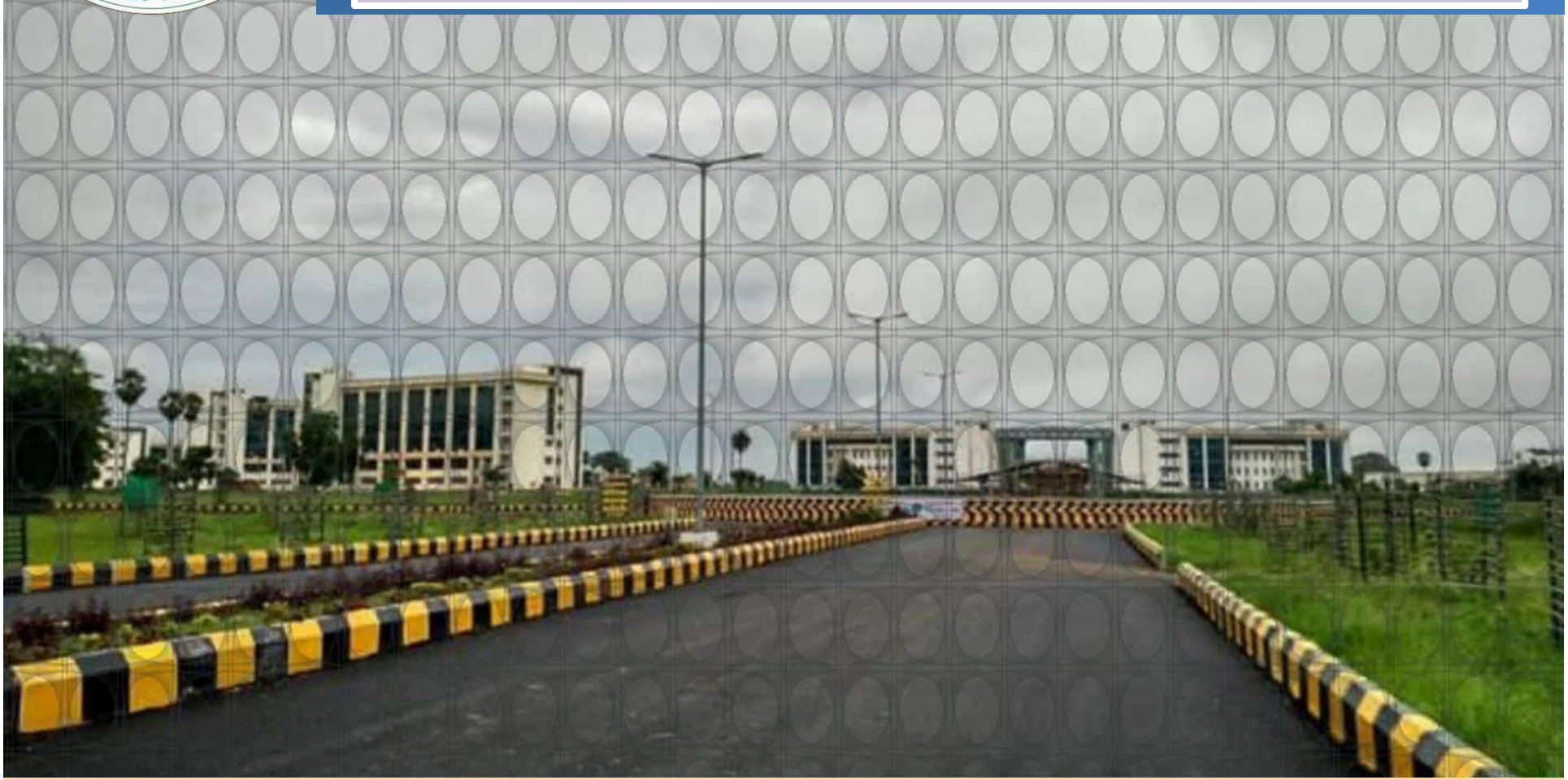
Nano Science and Technology

Placement Brochure

2018-2020



Indian Institute of Technology Patna

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ABOUT THE PROGRAM

The program has been started in July 2012 with the objective to develop innovative, focused and high quality human resource to address the current challenges faced by technology, society and humanity. This multi disciplinary program aims to train students graduated in various science and engineering streams like Electronics, Electrical, Mechanical, Materials Science, Chemistry or Physics, in the emerging and futuristic field of nano science and its application.

The students are chosen from Diverse engineering & science Backgrounds like:-

- ELECTRONICS & COMMUNICATION ENGINEERING (ECE)
- ELECTRICAL & ELECTRONICS ENGINEERING (EEE)
- MECHANICAL ENGINEERING (ME)
- PHYSICS

CURRENT PROJECTS BY MTECH STUDENTS

Following are the current projects going on by the present M.Tech students:-

- Valleytronics in Gapped dirac materials
- Electronic & transport behavior of nano magnetic system
- Theoretical and experimental investigation on photonic nanojets of dielectric, microstructure of different shapes.
- Tuning of strength of AL based alloys for high temperature application
- 2D materials for reinforcement of metals
- Mechanical property measurements of organic thin films using scanning probe microscopy.
- Polymer based nano composite for dielectric applications.
- Electrical property measurements of organic thin films using scanning probe microscopy.
- Developing of an optical lithography set up.
- 2D material based thermoelectric generator

CURRICULUM

The first two semesters consist of 6 courses each and the remaining two semesters consist of thesis work. Out of these 12 courses, there are 6 elective courses and 4 compulsory courses and 2 laboratory courses. Based on the interests of the students, electives are chosen, which could give them a head start in their thesis work and further research.

CORE COURSE:-

- Concepts of Nano materials
- Analytical Techniques
- Nano scale measurement and analysis laboratory
- Design and Synthesis of Nano materials Nano scale Devices
- Nano materials Synthesis and Device Fabrication Laboratory

ELECTIVE COURSE:-

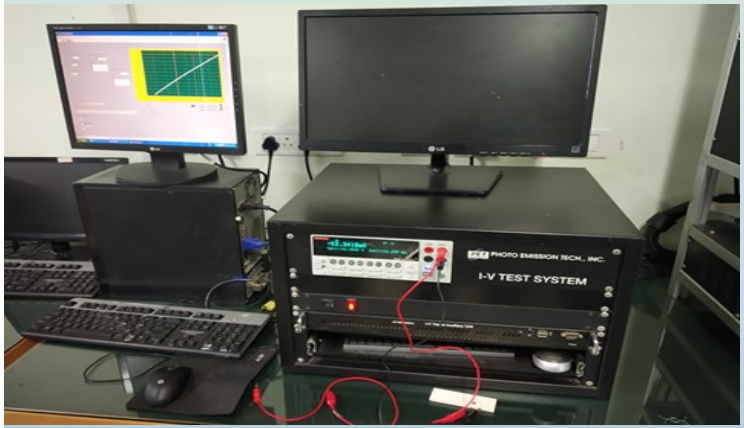
- Thin Film Technology
- Nano materials for Solar Energy and Photovoltaics
- Nano photonics
- Nano ionics
- Nano electronics Magnetism at Nanoscale
- MEMS NEMS

STUDENTS ACTIVITIES & CLUB

Following are the activities that had been carried by PHYSICS society:-

1. Fresher's day Celebration
2. Teachers' day Celebration
3. National Science day Celebration
4. Interaction with Prof. H. C. Verma
5. Open House Discussion

LABORATORY FACILITIES



1.

2.

3.

4.

1. IV measuring instrument
2. Thin film lab
3. Atomic force microscopy lab
4. Scanning tunneling microscopy lab

RESEARCH

The prime motive of research in the department is to enhance the knowledge, technology, and ideas for the betterment of the society. The department is intensively carrying out original research in the fields of nano Science and technology. Some of the projects that are undertaken by previous batch students:-

1. Zn based bio degradable alloys for orthopedic applications
2. 2D materials for nanofiller
3. Nano engineered surfaces for efficient heat / mass transfer
4. Smart nanomaterial for sensing application
5. 2D materials for wettability modifications
6. Al based alloys for high strength and temperature applications
7. Quantum state estimation

PROJECTS

The faculty of NSTprogramme in collaboration with the faculty members from other departmentshasbeen able to attract significant sponsored research activity:

Project Title	Principal Investigator	Funding Agency
Development of Indigenous Technology for HighEnergyDensity lipo Battery for low temperature application	Dr. A. K.Thakur	RCI,DRDO
Study of optical image Fusion Techniques for securing multispectral data	Dr. Naveen kumar Nishchal	CSIR New Delhi
Superconducting spintronics using hybrid superconducting ferromagnetic material	Dr. S.J.RAY	DST INSPIRE scheme
Investigations on thin films of Discotic liquid crystal molecules for applications in organic Electronics	Dr. Alpana Nayak	SERB

Contact Information

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