Indian Institute of Technology Patna
भारतीय प्रौद्योगिकी संस्थान पटना

Department of Materials Science and Engineering

Placement Brochure 2017-18

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About Us

- Materials have played a key role in the development of mankind. Materials Science and Engineering (MSE) is an interdisciplinary field of science and engineering which investigates how changes in the structure of a material influence its properties
- It is a discipline that enables both the creation and application of materials in society. Materials scientists and engineers develop materials for new applications, improve existing materials to enhance performance and evaluate ways in which different materials can be used together
- This field encompasses mechanical, chemical, biomedical, civil, electrical, and aerospace engineering, physics, and chemistry

Course Structure

1st Year
Specialization & Electives

2nd Year
Research & Teaching Assistantship

Core Subjects:

- Nano-structured Materials
- Materials Processing Technology
- Advanced Materials Characterization Techniques
- Structural and Functional Properties of Materials

Elective Subjects:

- Surface Engineering
- Rubber Science and Technology
- Advanced Building Materials
- Composite Science and Technology

Research Work:

Students undertake project pertaining to the real life problems in their final year and complete their thesis as a part of the course

Laboratory Courses:

- Microstructure and Phase Analysis Laboratory
- Materials Characterization Laboratory

Laboratory Facilities

Ceramics and Nano Materials Lab

Nano Materials Lab

Materials Chemistry Lab

Ceramics Lab

Ceramics and Nano materials lab in the department of MSE focuses on the area of chemistry of the advance materials which probes into the issue of synthesis of nano particles

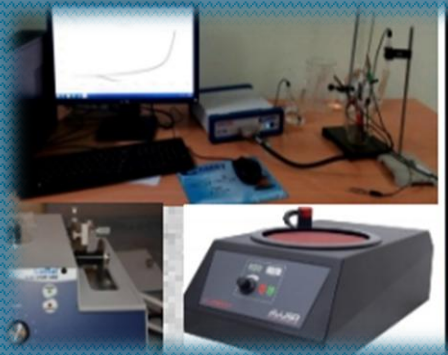
Laboratory Facilities

Metallurgical and Materials Lab

Plasma Spray Lab

Metallurgical and Corrosion Lab

Mechanical Testing Lab



Metallurgical and Materials Engineering lab in the department of MSE has set up world class Plasma Spray Lab, sophisticated micro indenter and to observe the corrosion properties of coating/substrate Potentiostat is established

Plasma Spray Lab

- Plasma spray technique has been used extensively in industry because of its high deposition rate, capability of coating complex shapes, and the ability to process high melting temperature materials
- Because of the high melting temperature of ceramic material (over 2000 °C), plasma spray is an ideal candidate to fabricate the coating

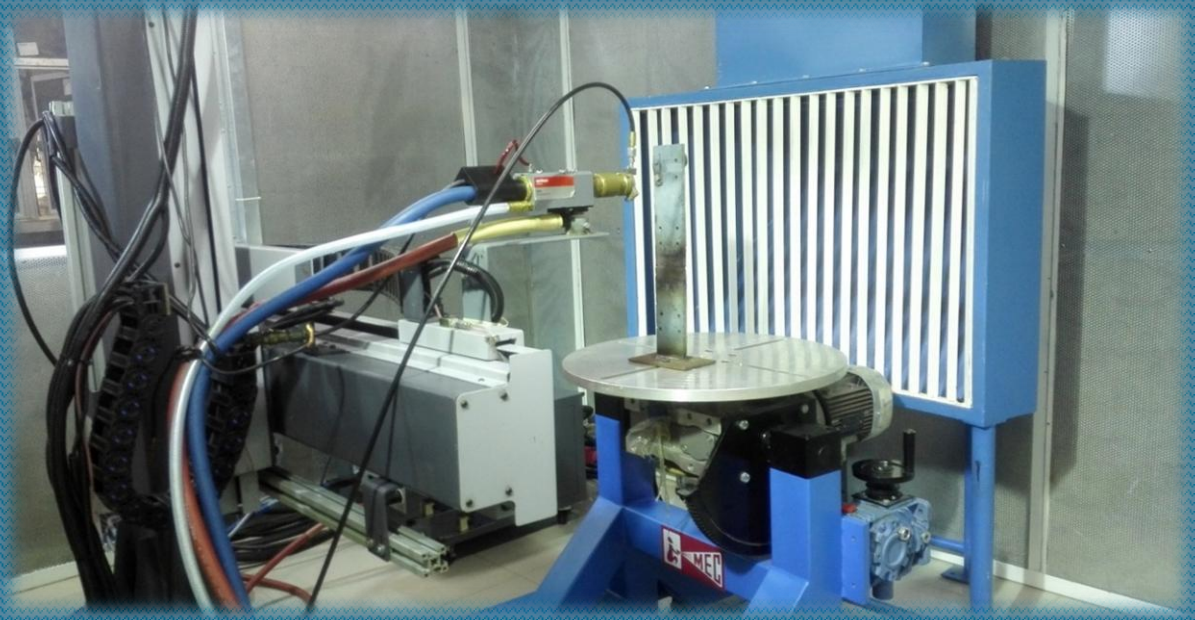


Fig: Plasma Spray Machine

Laboratory Facilities

Polymer Science and Technology Lab

- **Polymer Characterization Lab**
- **Polymer Processing Lab**
- **Polymer Synthesis Lab**



Polymer Science and Technology lab in the department of MSE has established many different set up for characterization, synthesis and processing of different polymer materials. Ongoing projects which are related to polymer blends, hybrid blends and polymer nano composites

M.Tech. Student Profile

The admission to M.Tech. in Materials Science and Engineering program is based on the performance of students in the National level GATE (Graduate Aptitude Test in Engineering) examination along with personal interview. The student are chosen from different engineering backgrounds such as Mechanical Engineering, Plastic/Polymer Technology, Chemical Engineering, Metallurgical Engineering etc.

The M.Tech. course is designed in a way to provide a holistic view of all the classes of materials such as ceramics, metals and polymers. Current batch of M.Tech. Materials Science and Engineering is working on the following projects:

- ✓ Ceramics Nano Composite
- ✓ Polymer Nano Composite
- ✓ Plasma Sprayed Coating of Ceramics for different applications

PhD Student Profile

Current PhD student under respective faculty members are as follows:

2014 PhD Batch

Name: Satyanarayana MS
Email:
snarayana.pms13@iitp.ac.in
Area of Research: Polymer blends nanocomposites
Supervisor:
Dr. Dinesh Kumar Kotnees

Name: Sribalaji M
Email:
sribalaji.pms13@iitp.ac.in
Area of Research: Ultra high temperature ceramics
Supervisor:
Dr. Anup Kumar Keshri

Name: Kushal Singh
Email:
kushal.pms13@iitp.ac.in
Area of Research: Oxide ceramics, nanoparticles
Supervisor:
Dr. Anirban Chowdhury

2015 PhD Batch

Name: Swarnima Singh
Email: swarnima.pms15@iitp.ac.in
Area of Research: Nano composite materials
Supervisor:
Dr. Anup Kumar Keshri

Name: Sreenath P.R.
Email: sreenath.pms15@iitp.ac.in
Area of Research: Polymer blend based nanocomposites
Supervisor:
Dr. Dinesh Kumar Kotnees

Name: Biswajyoti Mukherjee
Email: biswajyoti.pms15@iitp.ac.in
Area of Research: Nano structured coating
Supervisor:
Dr. Anup Kumar Keshri

Name: Kundan Kumar
Email: kundan.pms15@iitp.ac.in
Area of Research: Structure-property co-relation in oxides
Supervisor:
Dr. Anirban Chowdhury

2015 PhD Batch

Name: O.S Asiq Rehman
Email: yaamba.jrf14@iitp.ac.in
Area of Research: Plasma Sprayed Hydrophobic and Wear resistance Coating
Supervisor:
Dr. Anup Kumar Keshri

Faculty Profile

Dr. Anirban Chowdhury
Asst. Professor
Email: anirc@iitp.ac.in
Research Areas:
Materials Chemistry chemical synthesis structural and spectroscopic characterizations thin films & coatings nanomaterials- sol gel ceramics

Dr. Dinesh K. Kotnees
Asst. Professor
Email: dinesh@iitp.ac.in
Research Areas:
Polymer Science and Technology with specialization in Adhesion, Blends, Composites, Fillers and Bulk/Surface properties of Polymers

Dr. Anup K. Keshri
Asst. Professor & Head
Dept. of MSE
Email: anup@iitp.ac.in
Research Areas:
Carbon Nanotube Reinforced Ceramic Matrix and Metal Matrix Composites, Thermal Spraying, Tribology of Materials, Process-Structure-Property Relationship

Sponsored Projects

DENKA

Science & Engineering Research Board
Department of Science & Technology
Government of India

- Fabrication of robust Plasma Sprayed Rare Earth Oxide Hydrophobic Coating for the high temperature and wear resistance applications (Sponsored by SERB-DST)
- Synthesis and Characterization of faceted nano crystalline powders of Ceria-Zirconia and related systems (Sponsored by SERB-DST)
- Surface modified metallic orthopedic implant for sustained drug system (Sponsored by DST/TSG/AMT)
- Simultaneous improvement in low temperature and room temperature properties of elastomers (Sponsored by Denka, Japan)

Collaborations

Company/Organization Name
Tata Steel
NCL Pune
JK Tyres
NML Jamshedpur
IRMRA Thane
Action Shoes Delhi

Many students gone to these reputed organization for their Internships and M.Tech. projects

Collaborations

CUMI
CARBORUNDUM UNIVERSAL LIMITED

Company/Organization Name
CUMI
DST
NRB
ISRO

Government of India
Department of Science & Technology
Ministry of Science & Technology

GOVERNMENT OF INDIA
Department of Space
Indian Space
Research Organisation

Contact Us

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Student Placement Coordinator:

Head Coordinator:
Mr. Mayank Kr. Pandey
Contact: 09450150624
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