



## TRAINING AND PLACEMENT CELL

IIT Patna



# PLACEMENT BROCHURE

**M.TECH. 2023-24**

Masters in Technology,  
Materials Science and Engineering  
Department of Metallurgical and Materials Engineering  
Indian Institute of Technology Patna



[www.iitp.ac.in](http://www.iitp.ac.in)



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# From HOD's Desk

**Dr. Dinesh Kumar Kotnees**

**Head of The Department,  
Department of Metallurgical and  
Materials Engineering, IIT Patna**



The Department of Materials Science and Engineering was established at IIT Patna in 2012 and was renamed as Department of Metallurgical and Materials Engineering in 2018. The department started a 4-year undergraduate program in Metallurgical and Materials Engineering in 2019, and a 2-year postgraduate program in Materials Science and Engineering has been running since its inception. The postgraduate program is more interdisciplinary. The department currently has six highly accomplished faculty members. The department focuses on the fundamental and engineering aspects of conventional metallurgy, materials, and advanced materials. Students are explicitly trained to develop materials for new applications, improve existing materials to enhance performance, and evaluate how we can use different materials together.

The course curriculum is designed to take feedback from academia and industries. The curriculum has a good balance of theoretical and practical aspects, emphasizing case studies. The course curriculum is revised periodically to incorporate the new, emerging, and latest technologies and industrial advances.

The department houses world-class research facilities under one roof. All the laboratories are well equipped. Students are given hands-on training experience to encounter real-life engineering problems and develop critical thinking skills. Department is actively engaged with various funding agencies and industries such as DST, ISRO, BRNS, NRB, Tata Steel, MRF Tyres, Manali Petrochemical, Cumi, and many more. In addition, the department had developed a strong collaboration with universities abroad, defense laboratories, and industries.





# The Vision



“

The Department aims to train students with the fundamentals and expertise in design, synthesis, characterization, testing and production of various materials and also with the knowledge of new technologies in production and processing of new and advanced engineering materials.

The Department continues to strive for excellence and develop continuously through progress and improvement to establish itself as one of the leading department of education and research.



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## **Metallurgical and Materials Engineering**

# **The Department**

The strong dependence of our society on metals and alloys makes metallurgy an important branch of modern engineering. Metallurgical and Materials Engineering involves designing, innovation, and improvement of the process to transform into useful products we use every day in our life. It is a discipline that enables both the creation and application of materials in society. Materials engineers develop materials for new applications, improve existing materials to enhance performance and evaluate ways in which different materials can be used together.

The Department of Materials Science and Engineering was established in the year 2012 and was renamed as Department of Metallurgical and Materials Engineering in 2018.

The department focuses on the fundamentals and engineering aspects of conventional metallurgy, materials, and advanced materials.

The department faculty specializes in the areas of physical and mechanical metallurgy, phase transformations, thermomechanical processing, electron microscopy, materials chemistry, nanomaterials, thin films and coatings, ceramic and metal matrix composites, tribology, thermal spraying, polymer science and technology, fillers, composites, ultra high temperature ceramics and phase field modelling.





# Achievements

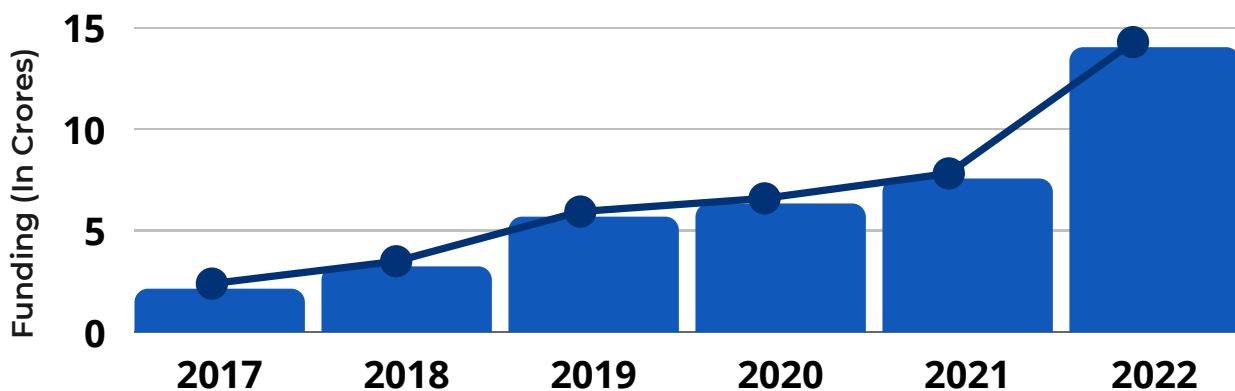
## Points of Pride:

- Plasma Spray coating Laboratory (PSCL) to set up Center of Excellence (COE) in "Wear & Corrosion Resistance coating technology" funded by the Department of Science and Technology (DST), Government of India at IIT Patna.
- State of the art Plasma Spray Coatings Laboratory PSCL and Processing & Modelling Laboratory.
- Department has filed 1 International and 15 National patents.
- Our alumni have excelled both in the field of Placement and Research.
- Our students have also bagged campus placements and are working at various R&D labs in flagship companies across India.
- Students have also grabbed various Internships & Scholarship Programmes for their Thesis Reports.
- A book, titled 'Rubber to Rubber Adhesion', authored by our faculty, Dr Dinesh K. Kotnees recently in August 2021.

## Journals Include:

- *ACS Nano*
- *Acta Materialia*
- *Acta Biomaterialia*
- *Scripta Materialia*
- *Electrochimica Acta*
- *Journal of the American Ceramic Society*
- *Journal of the European Ceramic Society*
- *European Polymer Journal*
- *Journal of Alloys and Compounds*
- *Applied Surface Science*
- *Polymer*
- *Ceramics International*
- *Composites Part B: Engineering*

Publications  
**200+**  
Papers  
**16**  
Patents  
Approx.. Funding of  
**14+**  
Crores





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# Research Laboratories

## ● Ceramics and Nanomaterials Lab

Nanomaterials  
Materials Chemistry  
Ceramic Testing

## ● Electro-Ceramics Lab

## ● Flash Sintering Lab

## ● Metallurgical and Materials Engineering Lab

Plasma Spray  
Mechanical Testing  
Metallurgical and Corrosion

## ● Polymer Science & Technology Lab

Polymer Synthesis  
Polymer Characterisation  
Polymer Processing

## ● Process Modelling Lab



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## Departmental Laboratories Facilities



### Material Processing :

- Cold Sintering
- Compression molding
- Conventional sintering of ceramics material
- Flash Sintering
- Glazing
- Haake Rheometer
- Moving Di-rheometer
- Plasma coating
- Slip casting

### Material Characterization :

- Dynamic Mechanical Analysis (DMA)
- Differential Scanning Calorimeter(DSC)
- FTIR Spectroscopy
- Impedance measurement
- Raman spectroscopy
- Scanning Electron Microscope(SEM)
- Transmission Electron Microscope(TEM)
- Thermogravimetric analysis (TGA)
- X-Ray diffraction analysis (XRD)

### Material Testing:

- Electrical Property Testing
- Fracture toughness measurement
- Indentation toughness measurement
- Magnetic Property Testing
- Mechanical Property Testing



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# Course Work

## Core Courses

### Technical :

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

### Non -Technical :

- Presentation Skill
- Technical Communication

## Elective Courses

- Aerodynamics
- Alloy Development and Heat Treatment
- Crystallography and Diffraction
- Composite Science and Technology
- Nanomaterials for Solar Energy and Photovoltaics
- Nanoscale Devices
- Surface Engineering

## Lab Courses

- Microstructure and Phase Analysis Laboratory
- Materials Characterisation Laboratory



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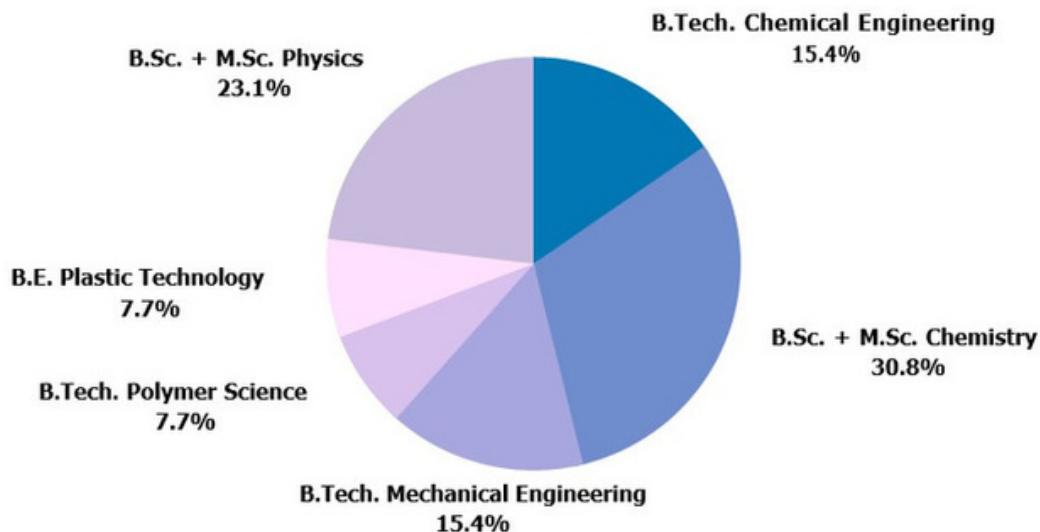


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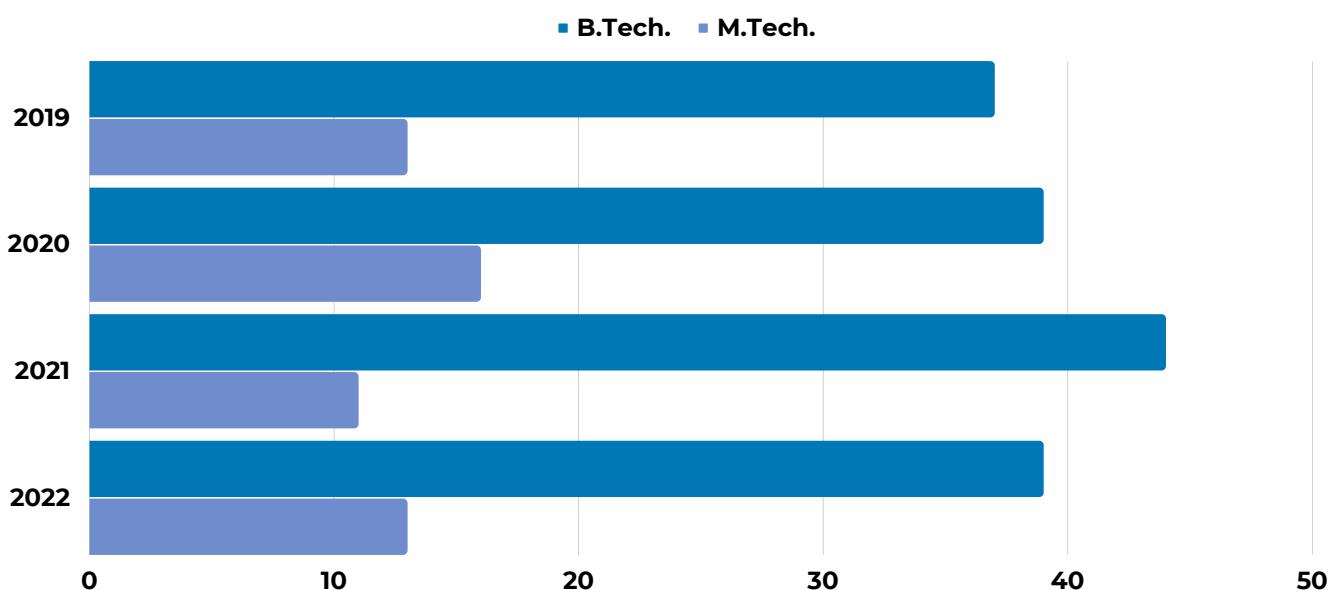


# Batch Profile Demographies

## M.Tech. Batch Profile



## Student Intake





# **Students' Organization**

## **Materials Engineering Society (MatES)**

MatES or Materials Engineering Society, IIT Patna is an association of UG and PG students, college faculty, and staff of the Department of Metallurgical and Materials Engineering of IIT Patna.



It is a combined effort to create an environment of curiosity about Metallurgy and Materials through various events, informative workshops, and inquisitive guest lectures.

**Aim:** We aim to provide creativity, potency, and morals in students and boost awareness about materials in society.

**Vision:** We anticipate practical knowledge and skills development in Metallurgical and Materials Engineering required in the present market to establish a good placement record in the coming years. We hope to focus on learning and enjoy the learning process. We strive to develop the interest of engineers in the MME department.

Visit us at: <http://mates.iitp.ac.in/>



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# Recruiters and Sponsors



# RWTH AACHEN UNIVERSITY

RWTH Aachen University  
Germany



TECHNISCHE  
UNIVERSITÄT  
DARMSTADT

Technical Institute  
Darmstadt, Germany



Karlsruhe Institute of  
Technology  
Germany



CSIR- Central Mechanical  
Engineering Research Institute



University of Warsaw  
Poland

In addition to these, Innovative Research work is going on with IISc, other IITs and Technologically Advanced Laboratories joining hands from all across the country.



## Placement Procedure

- 1** Companies are contacted by the Placement office or Placement cell (authorized student representatives) and invitations are extended, providing relevant information.
- 2** Companies are given an exclusive login id in the website after they submit the filled-in Job Announcement Forms (JAF) via email or fax. The JAFs are made available online, which helps the willing students to register for the company.
- 3** The Placement Cell and the Company confer and finalize the date for preplacement talks if necessary.
- 4** Each student who has registered for a particular company submits resume so that the company can shortlist the students accordingly.
- 5** A detailed schedule is prepared by the Placement Cell evaluating the job offer, prospects, student intake and the like. The schedule is confirmed with all the companies.
- 6** The companies/organizations visit the campus, meet the registered (or shortlisted) students, and conduct the interviews, tests or group discussion sessions in accordance with their respective recruitment process. The date of the interview and other sessions should be in compliance with the mutually confirmed schedule discussed earlier.
- 7** The companies are required to prepare and submit, with a written confirmation letter the list of students who are selected after the interview process, on the day of the interview itself.

***The job offer letters are to reach the Placement Cell in due course of time.  
If a student gets a job offer, he/she is not entitled to appear for further  
tests/interviews by any other company.***





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