DEPARTMENT OF METALLURGICAL AND MATERIALS ENGINEERING

IIT PATNA

Master of Technology(M. Tech) in Materials Science and Engineering (MSE) 2021-22

Placement Brochure M.Tech 2021-2022

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FROM THE HOD'S DESK

"The Department of Metallurgical and Materials Engineering(MME) at IIT Patna is endowed with world class facilities under a single roof which allow students to learn vital skills and obtain hands-on experience of latest technologies used both in industries and academia."

"This Department has pioneered a unified approach in teaching and research, which has enabled us to evolve into an interdisciplinary field catering to diverse applications."

The Department of Metallurgical and Materials Engineering (MME), earlier known as Materials Science and Engineering at IIT Patna was established in 2012.

From its inception, it has shown its strong impact in the areas of research as well as industrial exposure. The field of study in the Department encompasses areas of both traditional and modern Metallurgy and other allied systems of
materials (e.g., ceramics, polymer, composites etc).

Our UG program in Metallurgical and Materials Engineering has already commenced in July 2019. The PG program (i.e., M.Tech in Materials Science and Engineering), started in 2014, is more interdisciplinary in nature.

Along with metals and alloys, the Department focuses heavily on a variety of Materials like ceramics, polymers, intermetallic, composites, electronic materials and biomaterials.

The Department has reinvented constantly to keep the curriculum in pace with the state-of-the-art technologies. This Department has pioneered a unified approach in teaching and research, which has enabled us to evolve into an interdisciplinary field catering to diverse applications.

MME Department at IIT Patna is endowed with world class facilities under single roof which allow students to learn vital skills and obtain hands-on experience of latest technologies used both in industries and academia. Department is actively engaged with
various funding agency like SERB-DST, ISRO, NRB, BRNS, Manali Petrochemical Ltd., Denka (Japan), Tata Steel Limited, MRF Tyres, Carborundum Universal Limited etc.

Dr. Anup Kumar Keshri,
Head, Department of MME

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.

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 design, innovate and improve the process; to transform to useful products we use every day in our life. It is a discipline that enables both the creation and application of materials in society. Also, Material engineers develop materials for new applications, improve existing materials to enhance performance and evaluate ways in which different materials can be used together.

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 fundamental 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. Apart from the regular teaching activities, the Department aims to train students with the fundamentals and expertise of design, synthesis, characterize, 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 departments of education and research.

THE FACULTY MEMBERS

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"It is the supreme art of the teacher to awaken joy in creative expression and knowledge."

- Albert Einstein

LAB FACILITIES

Metallurgical and Materials Engineering Lab

Plasma Spray

Mechanical Testing

Metallurgical and Corrosion

Ceramics and Nanomaterials Lab

Nanomaterials

Materials Chemistry

Ceramic Testing

Polymer Science & Technology Lab

Polymer Synthesis

Polymer Characterisation

Polymer Processing

Flash Sintering Lab & Processing Modelling Lab

COURSE WORK PROFILE

Materials Science and Engineering (MSE) is an interdisciplinary field of science and engineering which investigates the relationship between the structure, property and processing of materials useful for various 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.

The M.Tech. degree is designed in a way to provide a holistic view on all the classes of materials including metals, ceramics and polymers. The program is intended to provide in-depth knowledge in the fundamentals, analysis and structure-property correlation of various materials system. There will be options also for taking elective courses from within and outside the department. Moreover, specialists from overseas and experts from industries will be invited to lecture for a few classes in selected modules.

CORE SUBJECT

- Nano-structured material
- Material processing technology
- Advance material characterisation techniques
- Structural and functional properties of material

ELECTIVE SUBJECTS

- Thermodynamics and phase diagrams
- Nanoscale devices
- Rubber science and technology
- Composite science and technology
- Fatigue and Fracture
- Renewable Energy Resources

LAB COURSES

- Microstructure and phase analysis lab
- Materials characterisation lab

BATCH PROFILE SUMMARY

AAKASH M NAIR
B.Tech. Mechanical Engineering (APJ Abdul Kalam Technological University, Kerala)

AJISH BABU
B.Tech. Polymer Science and Engineering (CUSAT, Kerala)

DEEPAK KUMAR
B.Tech. Mechanical Engineering (BIT Sindri Dhanbad, Jharkhand)

FAIZ ALI
B.Tech. Mechanical Engineering (Shaheed Bhagat Singh State Technical Campus Firozpur, Punjab)

GAURAV VAJPAYEE
B.Tech. Mechanical Engineering (SRM University Chennai, Tamil Nadu)

JEFIN A THACHIL
B.Tech. Polymer Science and Engineering (CUSAT, Kerala)

KAMLESH KUMAR MIRCHE
B.E. Metallurgy (O.P. Jindal Institute of Technology Raigarh, Chhattisgarh)

MANVENDRA KUMAR
B.E. Mechanical Engineering (Bangalore Institute of Technology Bengaluru, Karnataka)

NIRAJ KUMAR
B.Tech. Metallurgy and Materials Science (National Institute of Technology, Srinagar)

RITESH SINGH
B.Tech. Plastic and Polymer Engineering (Uttarakhand Technical University, Uttarakhand)

RITU KUMARI
B.E. Chemical Engineering (The Institution of Engineers India, Kolkata)

SABYASACHI PANDA
B.Tech. Mechanical Engineering (Veer Surendra Sai University of Technology, Burla, Odisha)

SAIF AHAMAD
B.Tech. Plastic Engineering (CIPET:IPT Lucknow, Uttar Pradesh)

SHUBHENDRA SHIVAM MAURYA
B.Tech Mechanical Engineering (Veer Bahadur Singh Purvanchal University, Jaunpur, Uttar Pradesh)

SUDHA KUMARI
B-Tech. Mechanical Engineering (Shaheed Bhagat Singh State Technical Campus Firozpur, PTU Jalandhar)

VISHAL KUMAR GUPTA
B.Tech. Plastic Engineering (CIPET:IPT Lucknow, Uttar Pradesh)

RECRUITERS & SPONSORS

Our Scholars are working on various research projects sponsored by Government and Private organizations with on par excellence.

For more exposure, Department has collaborated with International Universities, leading Researchers and State of the art Laboratories.

COLLABORATORS

CSIR-Central Mechanical Engineering Research Institute

University of Warsaw, Poland

Technical University , Darmstadt, Germany

RWTH Aachen University, Germany

Karlsruhe Institute of Technology, Germany

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.

Points of Pride

-State of the art **Plasma Spray Coatings Laboratory**, PSCL and **Processing & Modelling Laboratory.**

- Funding of the Department are increased by approx. **70.65%**, which talks about the growth of the department at a rapid rate.

- Department has filed **1 Iinternational** and **11 National** patents.

- Our alumni has 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.

ACHIEVEMENTS

12 Patents

Approx. Funding of

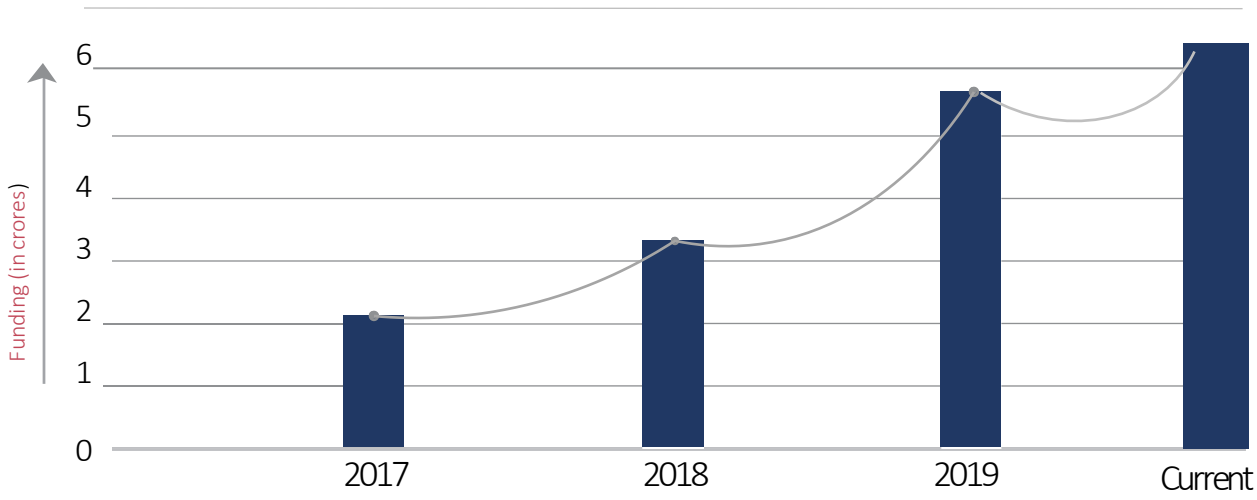
6.5 Crores

Publications

167 Papers

Journals include:

-Acta Materialia
-Acta Biomaterialia
-Composites Part B: Engineering
-Electrochimica Acta
-Scripta Materialia
-European Polymer Journal
-Materials Characterization
-Journal of Alloys and Compounds
-Ultrasonics Sonochemistry
-Applied Surface Science
-Polymer
-Journal of the American Ceramic Society



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