M.TECH

METALLURGY AND MATERIALS ENGINEERING

(First department of the country to start postgraduate program)

SPECIALIZATIONS

Machine Learning in Materials Engineering (Intake 16)

Materials Science and Engineering (Intake 16)

Why Join Us ?

- State of the Art Facility
- Expert Faculty with Global Academic and Industrial Exposure
- Hands-on Research on Emerging Fields
- Collaborative Industrial Projects
- Better scope for securing placements and academic positions in India and abroad

Indian Institute of Engineering Science and Technology Shibpur

(An institute of National Importance)

Erstwhile Bengal Engineering College

Major Recruiters

TATA STEEL WeAlsoMakeTomorrow

JSW

vedanta transforming for good

ADITYA BIRLA GROUP

TCS TATA CONSULTANCY SERVICES

cognizant

Contact Us

+91 8334043609

hod@metal.iiests.ac.in

RESEARCH AREAS

- Steel Technology
- Surface Engineering
- Extractive Metallurgy
- Computational Materials
- Machine Learning in Materials
- Additive Manufacturing
- Mechanical Behaviour
- Composite Materials
- High Entropy Alloys
- Joining Technology
- Biomaterials

Research Facilities

ABOUT THE DEPARTMENT

The Department of Metallurgy started its journey in the year 1939 with the introduction of a three-year degree course in Metallurgy at the erstwhile Bengal Engineering College affiliated to the University of Calcutta. The department is the second oldest metallurgy department in the country. A two-year post-graduate degree program in Physical Metallurgy was introduced in the year 1953. It has now evolved into a four-semester course. Here, it would be worthwhile to mention that this department was the first in the country to initiate a post-graduate course in metallurgy. The department in its glorious journey since 1939 has maintained a very high standard of teaching, commitment, and dedication. The department has established itself as one of the leading centers of metallurgical and materials engineering education and research in the country.

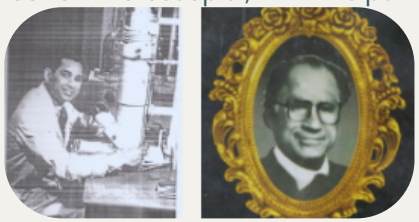
MISSION

- Training undergraduate and postgraduate students in the evolving domains of metallurgy and materials engineering.
- Imparting industry-oriented knowledge with sound theoretical foundations through rigorous theory and hands-on laboratory sessions.
- Carry out high-quality research with contemporary relevance with extensive interdisciplinary collaborations in sustainable and green metallurgy, corrosion, manufacturing, advanced materials, computational materials and informatics.

DISTINGUISHED ALUMNUS

PROF. A. K. SEAL

A Pioneer Electron Microscopist, Ex-Principal B.E. College



PADMASREE AWARDEE

Dr. C. Ganguly Prof. P. R. Roy

INDUSTRY LEADERS

Ms Sukla Mistry
Director, IOCL

Dr. G. Mukherjee
Ex-Vice Chairman, SAIL

Dr. S. Bhattacharya
Ex-MD, DSP

Dr. T. Mukherjee
Ex-Deputy MD
Tata Steel

DISTINGUISHED ACADEMICIANS

Prof. J. Majumdar
Univ. of Michigan

Prof. I. Manna
Ex-Director, IITK

Prof. K. K. Roy
IIT KGP

Prof. R. K. Roy
IITK

MESSAGE FROM HOD

Welcome to the Department of Metallurgy and Materials Engineering!

It is with immense pleasure that I invite you to explore the exciting postgraduate opportunities we offer. Our department has long been a center for excellence in materials innovation, and we are dedicated to training the next generation of engineers and scientists who will solve tomorrow's greatest challenges.

In our commitment to staying at the forefront of technological advancement, we are thrilled to introduce a new M.Tech specialization this year (from 2025): Machine Learning in Materials Engineering. This cutting-edge program is designed to bridge the gap between core materials science and the transformative power of data science and artificial intelligence. Alongside our established and highly respected specialization in Materials Science and Engineering, this new stream will equip you with the skills to design, discover, and deploy novel materials with unprecedented speed and precision.

We believe in providing opportunities for all passionate learners. Therefore, we are pleased to welcome applications from both GATE-qualified candidates and those who have not qualified for the exam, offering a unique pathway for dedicated individuals to pursue their master's degree with us.

Join us to be part of a dynamic learning environment where traditional expertise meets modern innovation. We look forward to welcoming you to our department and helping you build a remarkable career.

Dr. Sukumar Kundu
Head of the Department
Metallurgy and Materials Engineering

SPECIALIZATIONS

Name	No. Seats
Machine Learning in Materials Engineering	16
Materials Science and Engineering	16

PROGRAM CORE (PC) COURSES

Materials Technology, Advanced Characterization of Materials, Advanced Thermodynamics and Kinetics, Manufacturing Processes, Mechanical Behaviour of Materials, Multiscale Material Modeling, Materials Technology Lab., Materials Characterization Lab., Machine Learning in Materials Lab/Mini Project

PROGRAM SPECIFIC ELECTIVE (PSE) COURSES

Specialization	PSE Courses
Machine Learning in Materials Engineering	Machine Learning in Materials Discovery, Atomistic Simulation of Materials, Deep learning for materials engineering/Microstructure modelling for metallic systems
Materials Science and Engineering	Functional Materials/Composite Materials, Design and selection of Materials/Surface treatment and Modifications

OPEN ELECTIVE (OE) COURSES

Selection of Engineering Materials, Nanostructures and nanomaterials/Biomedical Materials and Devices

FACULTY

Name	Research Area
Prof. Amitava Basu Mallick, Professor	Magnetic materials, Composites materials, Nanocstructured materials
Prof. Partha Pratim Chattopadhyay, Professor	Phase transformation, Modelling & Simulation
Prof. Swarup Kumar Ghosh Professor	Structure property correlation in steel, Phase transformation, Corrosion engineering
Prof. Debdulal Das Professor	Composite Materials, Tribology, Non-traditional machining, ML in Manufacturing, Fatigue
Prof. Manojit Ghosh Professor	Thermo-mechanical simulation of Al-alloys, Surface treatments, Crystallographic texture
Dr. Sukumar Kundu Associate Professor	Advanced joining techniques, Degradation of materials, Mg-based biomaterials
Dr. Kaushik Das Associate Professor	Nanomaterials, Mechanics of multifunctional composites
Dr. Snehanshu Pal Associate Professor	Atomistic modelling of materials, Process modelling and manufacturing, Materials informatics
Dr. Tapendu Mandal Assistant Professor	Biomaterials, Corrosion, Computational materials engineering
Dr. Suman Guha Assistant Professor	Computational Plasticity, Fatigue, Sheet Metal Forming, Machine Learning in metal plasticity
Dr. Avishek Kumar Assistant Professor	Polymer Surface coating, Natural Bioactive materials, Plasma processing