MECHANICA

MECHANICAL ENGINEERING DEPARTMENT

INDIAN INSTITUTE OF TECHNOLOGY (ISM) DHANBAD

ISSUE # 2 | OCTOBER-DECEMBER 2024 | VOLUME #1

ABOUT THE DEPARTMENT

The Department of Mechanical Engineering started the journey in 1999 and completed 25 years with excellence. Presently, the department is the largest in the institute, having 46 faculty members. The department offers two UG courses, one in Mechanical Engineering and another in Mining Machinery Engineering. Faculty members of the department have guided more than 200 PhD students so far.

The UG and PG students are working with the faculties in the fields of microfluidics, aero-acoustics, bubble dynamics, biomechanics, robotics, renewable energy, tribology, refrigeration, CFD, Fluid-structure interactions, Turbomachinery, modern-manufacturing, fluid power, mining machinery along with conventional thermal engineering and machine design.

PUBLICATIONS

A few good research articles have been published in reputed International journals like Physics of Fluids, International Journal of Thermal Science, Applied Thermal Engineering, and International Communications in Heat and Mass Transfer.

RESEARCH OF THE QUARTER

Prof. Deepak Kumar Mandal's group has been selected as the Editor's pick in the upcoming issue of the Physics of Fluids journal.

WOMEN FACULTY ACHIEVERS

Prof. A. Sengupta has been appointed as an Editorial Board Member of Discover Fluid Mechanics, Springer Nature, USA.

She is also a guest editor for a special issue titled "Women in Aerospace Engineering" for Frontiers in Aerospace Engineering, Lausanne, Switzerland.

I. S. K. Dutta, D. K. Mandal. Physics of Fluids, 37, 011706, 2025.
II. A. Kureshee, N. K. Jha, V. Singh, R. N. Hota, S. Narayanan, D. K. Mandal. Physics of Fluids, 36, 122102, 2024.
III. A. Chaudhary, Gautam, S. Sahoo, International Journal of Thermal Science, 208, 109485, 2025
IV. A. Singh, A. Chaudhary, S. Sahoo, Applied Thermal Engineering, 264, 125468, 2025
V. V. A. Chaudhary, S. Sahoo, International Communications in Heat and Mass Transfer, 161, 108464, 2025

Prof. Ajit Kumar and Prof. Niranjan Kumar Successfully conducted a six-day Capacity Building Programme titled "Hydraulics in Mining Machines: Operation, Maintenance & Troubleshooting" from December 9 to December 14, 2024.

Prof. Deepak Kumar Mandal's research shows that an emulsion drop's penetration and spread on inclined meshes decrease with increasing inclination. Capillary resistance dominates, limiting penetration. The study, useful for agricultural and chemical applications, compares the spread with three models, highlighting penetration limitations and improved atomization for better fertilizer distribution.

Prof. Pawan Kumar Singh successfully conducted a two-day workshop on "Thermal Management with Active and Passive Cooling Methods" from December 13 to December 14, 2024. Several eminent speakers from IITs and ISRO delivered talks on thermal management.

WORKSHOP / CONFERENCE / SEMINAR IN THE DEPARTMENT

01

Hydraulics in Mining Machines Operation, Maintenance & Troubleshooting

02

Thermal Management with Active and Passive Cooling Methods

EDITOR
Prof. Shibayan Sarkar

HEAD OF THE DEPARTMENT

Prof. Somnath Chattopadhyaya