



**... all round development
of the personality is
possible only through
education ...**



University Grants Commission



सत्यमेव जयते

Ministry of Education
Government of India

NO COURSE FEE FOR REGISTRATION

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“Fluid Mechanics in Action: Principles, Advances, and Applications”

- A twelve-day online refresher course for faculty members has been meticulously designed to align with NEP 2020's key features.
- “Fluid Mechanics in Action: Principles, Advances, and Applications” is an intensive refresher course aimed at deepening fundamental and advanced understanding while highlighting state-of-the-art developments and computational tools that enable practical solutions in fluid mechanics across diverse domains.
- Through the expert lectures, hands-on sessions, and research-oriented discussions, the attendees will gain exposure to the foundational understanding of fluid mechanics while exploring its modern advancements and wide-ranging applications.
- Join us to explore, engage, and excel in the dynamic field of fluid mechanics.

A TWELVE DAYS REFRESHER COURSE

To be held

15TH SEPTEMBER TO 26TH SEPTEMBER 2025

Organized by

INDIAN INSTITUTE OF TECHNOLOGY (ISM) DHANBAD

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Programme Coordinators

Prof. Ajay Bhandari (Coordinator)

Prof. Aditi Sengupta (Co-Coordinator)

Department of Mechanical Engineering

Indian Institute of Technology (ISM)

Dhanbad

Dhanbad - 826004, Jharkhand, India

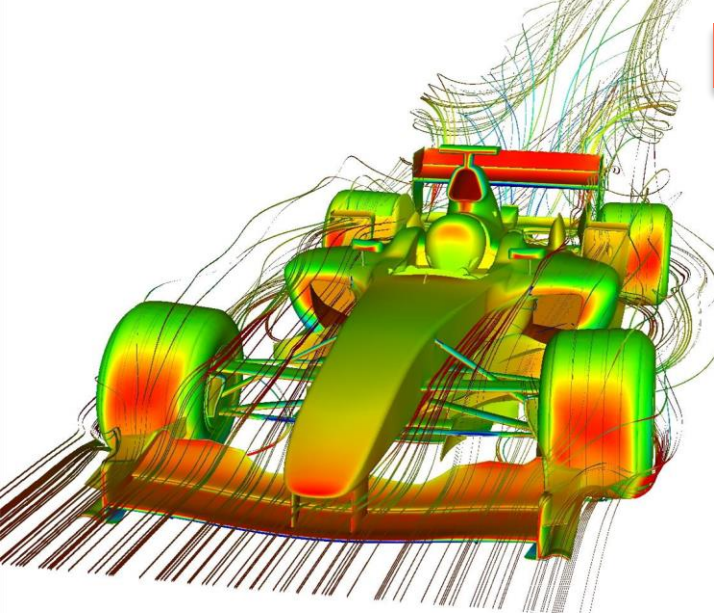
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ONLINE MODE

**REFRESHER COURSE
ON
FLUID MECHANICS
IN ACTION:
PRINCIPLES,
ADVANCES, AND
APPLICATIONS**



LAST DATE OF REGISTRATION: 13.09.25

ONLINE MODE: NO COURSE FEE

How to register

1. The participants should first register at <https://mmc.ugc.ac.in/> using their email ID.
2. Use the Login credentials received over the registered Email Id and LOGIN as **PARTICIPANT**.
3. From the Dashboard click on “**Apply for Other Programmes**”.
4. Click on **Apply for** and Select “**Refresher Course**”.
5. Click on **Programme Name & Center Name** and select **Indian School of Mines, Dhanbad (Jharkhand)** (15/09/25-26/09/25).

6. Click on **Title** and select the programme title that appears in the dropdown menu.
7. Fill in the required details like **Your Subject Area Specialization; Year of Joining; Total Teaching Experience** and others.
8. Click on “**Upload NOC**” button and upload the NOC duly signed and approved by the **Head** of your **Institution** by clicking on the “**Choose File**” button.
9. Click on **Submit** button.
10. Last date to register is **13.09.2025**, Please register well in advance to avoid last minute rush.
11. The participants will get a confirmation Email after registration.

Eligibility Criteria: as per MMTTP guidelines

MMTTP Information: https://www.ugc.gov.in/pdfnews/2241074_MM-TTP-Information-Brouchure.pdf

MMTTP portal user guide: <https://mmc.ugc.ac.in/S/MMTTP%20User%20Manual%20Participants.pdf>

Objective & Scope

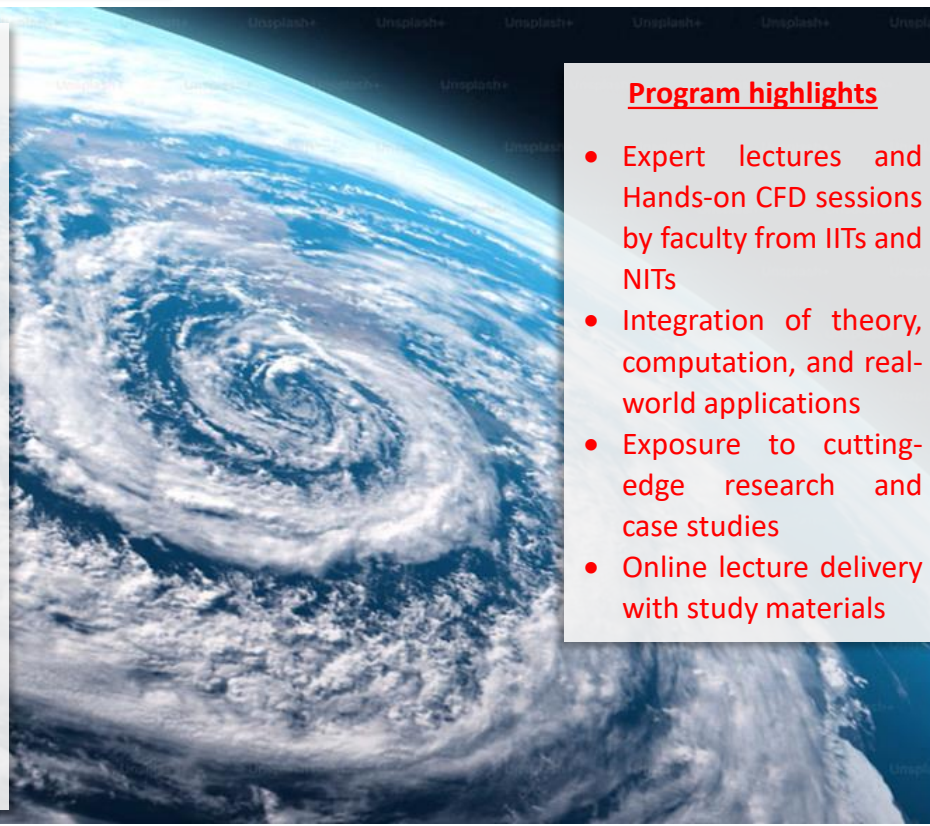
1. Refresh core concepts of fluid mechanics.
2. Link theory to real-world applications.
3. Explore advanced topics like turbulence, compressible flows, open channel flows and flow through porous media.
4. Introduce computational methods and familiarize with numerical techniques (FDM, FEM, FVM).
5. Hands-on training in open-source and commercial CFD softwares (OpenFOAM, ANSYS Fluent, and own codes).
6. Showcase fluid mechanics research applications across diverse sectors.
7. Encourage analytical and problem-solving skills.

Course content in brief

This refresher course offers a structured exploration of fluid mechanics, beginning with a review of fundamental principles and progressing to advanced topics. It delves into the mathematical formulation of fluid flow, followed by an introduction to computational methods including finite difference, finite volume, and finite element techniques. Participants will gain practical exposure through hands-on sessions with CFD tools. The course concludes with research-focused modules highlighting real-world applications of fluid mechanics across diverse sectors.

Program highlights

- Expert lectures and Hands-on CFD sessions by faculty from IITs and NITs
- Integration of theory, computation, and real-world applications
- Exposure to cutting-edge research and case studies
- Online lecture delivery with study materials





ABOUT THE DEPARTMENT

The Department of Mechanical Engineering started the journey in 1999, and successfully completed 25 years with excellence. Presently, the department is the largest in the institute having 45 faculty members. The department offers two UG courses, one in Mechanical Engineering and another in Mining Machinery Engineering; three PG course: Thermal, Design and Manufacturing. Faculty members of the department have guided more than 250 PhD students so far.

For further details, please visit:
<https://www.iitism.ac.in/>



ABOUT THE INSTITUTE

Indian Institute of Technology (ISM) Dhanbad, earlier known as Indian School of Mines Dhanbad. The Indian School of Mines was formally opened on 9th December 1926, by Lord Irwin, the then Viceroy of India to address the need for trained manpower related to mining activities in the country with disciplines of Mining and Applied Geology. In 1967 it was granted the status of a deemed to be university under Section 3 of UGC Act, 1956. In 2016, ISM Dhanbad has got the status of IIT. Since its establishment, IIT(ISM) Dhanbad has undergone considerable expansion of its activities, and presently it can be considered as a total technology education institute. At present, the Institute has 17 departments and several centres, which are equipped with all necessary infrastructure and worldclass faculties to undertake all kinds of fundamental and applied research problems.



IN ACTION: PRINCIPLES, ADVANCES, AND APPLICATIONS

Under the aegis of
Malaviya Mission Teacher Training Programme

15TH SEPTEMBER TO 26TH SEPTEMBER
2025

ONLINE MODE