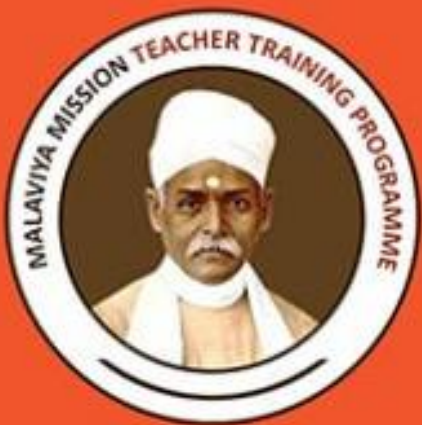




**... all round development
of the personality is
possible only through
education ...**



सत्यमेव जयते

Ministry of Education
Government of India

NO COURSE FEE FOR REGISTRATION



“Advances in Net-Zero Energy Applications”

- A six-day online course for faculty members has been designed to align with NEP 2020's key features.
- “Advances in Net-Zero Energy Applications” is an intensive short term faculty development program course aimed at highlighting state-of-the-art developments in net-zero energy.
- Expert-led sessions by leading researchers and industry professionals, complemented by practical engagement through simulations, design exercises, and real-world case studies.
- Interdisciplinary framework integrates technology, policy, and economics in net-zero applications, while offering insights into emerging innovations such as AI, smart grids, and advanced materials that are transforming the future of sustainable energy.

A SIX DAYS FDP COURSE

To be held

**3RD NOVEMBER TO 8TH
NOVEMBER 2025**

Organized by

**INDIAN INSTITUTE OF
TECHNOLOGY (ISM)
DHANBAD**



Programme Coordinators

Prof. Aditi Sengupta (Coordinator)

Prof. Ajay Bhandari (Co-Coordinator)

Department of Mechanical Engineering

Indian Institute of Technology (ISM) Dhanbad

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Email:- aditi@iitism.ac.in

ajayb@iitism.ac.in



ONLINE MODE



LAST DATE OF REGISTRATION: 01.11.25

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 “**Short Term Program / Faculty Development**”.
5. Click on **Programme Name & Center Name** and select **Indian School of Mines, Dhanbad (Jharkhand) (03/11/25 - 08/11/25)**.

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 **01.11.2025**, 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:

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

Objective & Scope

1. Understand fundamentals of net-zero energy and sustainability.
2. Explore advanced renewable technologies and storage solutions.
3. Develop skills to design and optimize net-zero systems.
4. Address challenges and study emerging trends.
5. Integration of AI, IoT, and blockchain in energy systems.
6. Development of advanced storage and smart grids.
7. Expansion from buildings to smart cities.
8. Innovation through new materials, policies, and global collaboration.

Course content in brief

This course introduces the principles of **net-zero energy**, global climate goals, and policy frameworks. It covers **renewable technologies** like solar, wind, geothermal, bioenergy, and net-zero fuels such as hydrogen and biofuels. Learners will explore **advanced storage, smart grids, and demand-response systems**, supported by real-world case studies of net-zero buildings and communities. The course concludes with future innovations in **AI, IoT, blockchain, and advanced materials** driving sustainable energy solutions.



Program Highlights

This program features **expert-led sessions** by leading researchers and industry professionals, combined with **hands-on learning** through simulations, design exercises, and real-world case studies. With an **interdisciplinary approach**, it connects technology, policy, and economics in net-zero applications while providing exposure to **innovative technologies** such as AI, smart grids, and advanced materials that are shaping the future of sustainable energy.



ADVANCES IN NET-ZERO ENERGY APPLICATIONS



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 centers, which are equipped with all necessary infrastructure and worldclass faculties to undertake all kinds of fundamental and applied research problems.

PROGRAM HIGHLIGHTS

Expert-led sessions
Hands-on learning
Interdisciplinary approach
Real-world case studies
Innovative technologies

LEARN MORE

Under the aegis of
Malaviya Mission Teacher Training Programme

3RD NOVEMBER TO 8TH NOVEMBER 2025

ONLINE MODE



INDIAN INSTITUTE OF TECHNOLOGY (INDIAN SCHOOL OF MINES) DHANBAD, JHARKHAND, INDIA - 826004



List of Speakers



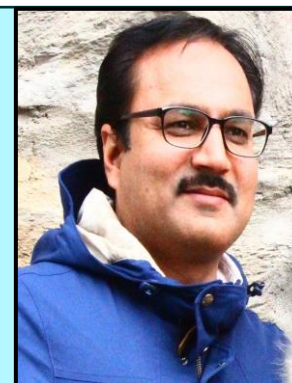
Dr.
Debadutta
Mohanty,
Senior
Principal
Scientist,
CSIR-
CIMFR



Prof.
Asish
Sarangi,
IIT
Bombay



Prof.
Santanu De,
IITK



Prof.
Ranbir
Singh, IIT
Mandi



Prof.
Sarthak
Nag, IIT
Mandi



Prof.
Dhiraj
Kumar
Mahajan,
IIT Ropar



Prof.
Maneesh
Punetha,
IIT BBS



Prof.
Shibayan
Sarkar, IIT
Dhanbad



Dr
Rajasekhar
Reddy
Busigari
IIT Dhanbad



Prof.
Rahul M
R, IIT
Dhanbad



Prof.
Omkar
Mypati,
IIT
Dhanbad



Prof. Aditi
Sengupta,
IIT
Dhanbad