1st Winter School (offline mode) on

Additive Manufacturing

(A Hands on Training on AM machines)

In Collaboration with

Electro Optical Systems (EOS) India Private Limited

(A curtain raiser event for AIMTDR-2023)

(06th – 10th February 2023)

Organized by

Department of Mechanical Engineering

Indian Institute of Technology (BHU), Varanasi, India -221005

Organizing Committee

Patron

Prof. P. K. Jain

Director, Indian Institute of Technology (BHU), Varanasi

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Head, Department of Mechanical Engineering, Indian Institute of Technology (BHU), Varanasi

Coordinators

Dr. Pawan Sharma

Dr. G. M. Karthik

Department of Mechanical Engineering, Indian Institute of Technology (BHU), Varanasi

About the Institute

The Indian Institute of Technology (Banaras Hindu University) owes its existence to Mahamana Pandit Madan Mohan Malviya, Bharat Ratna-the founder of the first residential university of modern India, the Banaras Hindu University. The three of the erstwhile engineering colleges of BHU, namely BENCO, MINMET and TECHNO, were merged to form the Institute of Technology (IT-BHU) in 1968 to provide an integrated educational base. The ITBHU has been admitting students through the JEE conducted by the IIT's since 1972, and has been consistently ranked amongst the top few engineering institutions of the country. IT-BHU became IIT (BHU) in June 29, 2012 by an Act of Parliament. The Institute has maintained high academic standard since its inception. It has turned out luminary engineers and administrators who served the nation with great distinction.

About the Department

The Department of Mechanical Engineering (ME) came into existence in 1919 under the leadership of Professor Charles A. King, the first Head of the Department and Principal of the erstwhile Banaras Engineering College. Over the last ninety nine years, the department has grown four fold to become the largest department in IIT (BHU), Varanasi. Department offers post-graduate and doctoral programmes in specializations such as Machine Design, Thermal and Fluid Engineering, Production Engineering and Industrial Management. The ME department is also supported by the IIT-Main workshop.

About the Programme

The program is an application-oriented program with an emphasis on the understanding of the technical aspects of additive manufacturing (AM). The focus will be on explaining the concepts of AM, key issues related to the application of the AM parts, material development, methods to develop customized designs for AM and novel AM techniques. Furthermore, to develop a better understanding of the technology, case studies and hands-on practice on the AM machines will be performed during the program. Specifically, this winter school is designed to provide hands on training on Metal and Polymer based AM machines with an aim to develop skilled professionals in the area of AM. The training will be provided by faculty members from IITs and trained engineers from Industry.

The program is a part of a curtain raiser event for the All India Manufacturing Technology, Design and Research (AIMTDR) Conference to be held at IIT BHU in December 2023. The theme of the AIMTDR 2023 conference is inclusive manufacturing and hence this program will focus on the key aspects of inclusive manufacturing.

Who should attend?

Students, industry personnel, scientists, postdoctoral fellow and faculty members of the institutes/universities/research labs who are keenly looking for Additive Manufacturing as a tool for a wide variety of applications and research.

Important Dates

Last date for registration	**27th Jan. 2023**
Intimation to participants	**28th Jan. 2023**
Course dates	**06th-10th Feb. 2023**

Registration Fee

UG, PG students and Research Scholars	**Rs 1000**
Faculty & Scientist	**Rs 1500**
Industry Personnel	**Rs 2000**

Contact Details

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Major Course Content

The major topics to be covered in the short term course are:

- Introduction to Inclusive Manufacturing and Additive Manufacturing.
- Design for Additive Manufacturing.
- Materials for Additive Manufacturing.
- File preparation for Additive Manufacturing.
- Training and hands-on practice on part fabrication using EOS M290 Metal 3D Printing Machine.
- Training and hands-on practice on part fabrication using Markforge composite 3D Printing Machine.
- Hands-on Training on post processing operation such as heat treatment and micro shot peening on Metal 3D printed parts.
- Training and hands-on practice on part fabrication using Fused Deposition Modelling (FDM).

Registration Details

Registration can be done using the following link or by scanning the given QR code:

https://forms.gle/g7ckkY6hMVNuCwkn8

Time: 09:30 AM Onwards (Daily)

Selection will be as per the eligibility, and on First-Come-First-Served basis. Certificate will be awarded to the participants who attend all the sessions.

The complete payment should be made to the following account:

A/C Name: IIT(BHU)-Main Account (Institute Development Fund)

Name of A/C holder: Registrar, IIT (BHU), Varanasi

A/C No.: 32778803937

IFSC Code: SBIN0011445

Type: Current

Session Wise Time Schedule

Date	Session 1 (9:30-11:00 AM)	11:00-11:30 AM	Session 2 (11:30 AM-1:00 PM)	1:00-2:15 PM	Session 3 (2:30-4:00 PM)
Day 1	Inaugural Session: Curtain Raiser Event for AIMTDR 2023/ Key Note Lecture on Inclusive Manufacturing	High Tea	Introduction to Additive Manufacturing	Lunch	Materials for Additive Manufacturing
Day 2	Design for Additive Manufacturing		File preparation for Additive Manufacturing		File preparation for Additive Manufacturing
Day 3	Hands-on Training on Part Fabrication using EOS M290 Metal 3D Printer		Hands-on Training on Part Fabrication using EOS M290 Metal 3D Printer		Hands-on Training on Part Fabrication using EOS M290 Metal 3D Printer
Day 4	Hands-on Training on Part Fabrication using EOS M290 Metal 3D Printer		Hands-on Training on post processing operation on Metal 3D printed parts		Hands-on Training on Part Fabrication using Markforge composite 3D Printing Machine.
Day 5	Hands-on Training on Part Fabrication using Markforge composite 3D Printing Machine.		Hands-on Training on Part Fabrication using Ultimaker FDM 3D Printer.		Valedictory function

Facilities Available at Precision Engineering Centre (IIT BHU)

1) EOS M290 Metal 3D Printer (Make: EOS)
2) Inkjet 3D Printing Machine (Make: HP)
3) Fused Deposition Modelling 3D Printer (Make: Ultimaker)
4) Composite 3D Printing Machine (Make: Markforge)
5) Retort Furnace for Heat Treatment (Make: Ants Lab Innovation)
6) Micro shot peening system