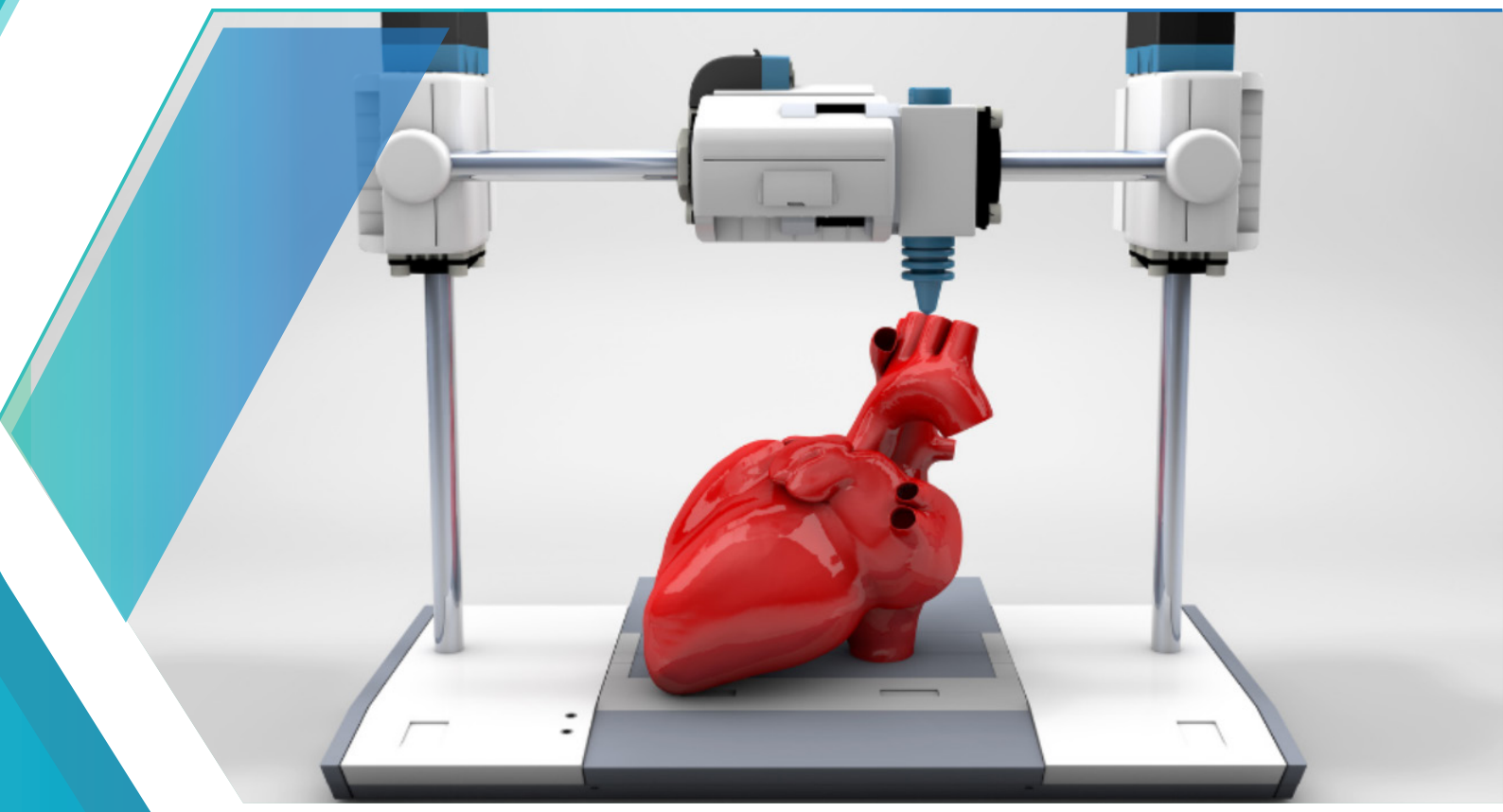
DATTA MEGHE
INSTITUTE OF HIGHER
EDUCATION & RESEARCH
(DEEMED TO BE UNIVERSITY)
LEARN. LEAD.

# Additive Technology Enhancement Program (ATEP) with NCAM

## "3D Printing beyond the CT"

## Five Days Faculty Development Program

## 5th Feb to 9th Feb 2024



Funded by

NCAM
NATIONAL CENTRE FOR ADDITIVE MANUFACTURING

इलेक्ट्रॉनिकी एवं सूचना प्रौद्योगिकी मंत्रालय
MINISTRY OF ELECTRONICS AND INFORMATION TECHNOLOGY
सत्यमेव जयते

**Beneficiary : Faculty, PhD Scholar, PG Student can register for the course**

http://tinyurl.com/3dm3yw9t

**Organized by**
**Faculty of Engineering and Technology**
**Directorate of Research & Innovation**

**Free Registration till**
**31st Jan 2024**
Limited Seats Available

Datta Meghe Institute of Higher Education and Research (DU), Sawangi (Meghe), Wardha 442004
www.dmiher.edu.in / www.ncam.in/ ashutosh.bagde@dmiher.edu.in 9021201578

## ABOUT DMIHER (DU), WARDHA

Datta Meghe Institute of Higher Education and Research (Deemed to be University) is an excellent place for pursuing academic excellence in Engineering, Medicine, Dentistry, Nursing, Physiotherapy, Ayurveda, Pharmacy, Engineering, Management, MCA, Allied Sciences, Allied Health Sciences, Epidemiology, Online Distance Learning, and Virtual Learning. 'A++' Accreditation (Fourth Cycle) by 'NAAC' in 2023. Category-I deemed to be University under UGC for Categorization of Universities for Grant of Graded Autonomy Regulations 2018. Awarded with prestigious Dr. B.C. Roy Award for Institutional Research. Only Deemed University in Central India has A++ NAAC Accreditation.

## ABOUT THE FEAT

Faculty of Engineering and Technology (FEAT) is an evolving institution in the charter of Datta Meghe Institute of Higher Education and Research (Deemed to be University). FEAT promotes globally acclaimed technocrats. It mainly focuses on research based education. Researching the advanced areas in the field of engineering, nanotechnology, bioscience, and bioengineering. The Faculty of Engineering and Technology has been providing Industry driven curriculum in collaboration with Unnati Intel, IBM, e-Yantra, University of Sydney and Siemens. Healthcare related tracks providing carrier opportunities such as Healthcare Data Scientist, Remote Monitoring clinician, Medical Image Analyst, Tissue Engineering has been driven in each department. The college has Incubation center and conducting start - up programs for Entrepreneurship development for students and healthcare. College has provided the semester long Internship in reputed industries of National and International (Asia – Pacific, Europe, USA) for practical exposure. The Institution has R& D Cell for incredible progress in academics of student and faculties to encourage for innovations and creations of new technologies in the field of engineering

## PROGRAMME BRIEF

Additive manufacturing is promoting as advantageous over the conventional manufacturing due to its freedom to fabricate the complicated structure. The contemporary manufacturing systems are facing extreme market dynamism and product complexities. The management of various phases of product development cycle is a challenging task which stimulates the need for various time compression technologies. Additive Manufacturing technologies enable the generation of prototypes within short period of time. Some of the vital applications include design visualization, functional testing and so on in the fields of automotive, aerospace, biomedical and consumer electronics. Rapid tooling is also a fast-emerging technology encompassing direct and indirect tooling methods. The fundamental concepts of prototyping, tooling and allied processes, their applications and challenges will be deliberated during the conduct of the workshop. Recently, biomedical field has explored the advantages of AM Technology for easy and effective providence of service to patients. The goal of this FDP is to give an overview of the various RP Technology and hands on session on Fused Deposition Modeling (FDM), Digital light processing (DLP) Technology. After giving the necessary background in CAD modeling and Reverse Engineering, FDM, DLP and bioprinting will be discussed in detail.

## OBJECTIVE

1. To update the participants with the state of the art Technologies in 3D Printing.
2. To enable the participants to have experiential Learning in 3D modeling, build-setup preparation and 3D printing through hands-on sessions.
3. To provide the awareness of 3D printing amongst the participant for various case study.
4. To enable participants to learn the industrial, real life and interdisciplinary applications of 3D printing.

## PROJECT IMPACT-EXPECTED OUTCOME

1. To acquaint the participants with the hands-on experience for AM, demonstrate the various AM technologies, materials science aspect for AM, CAD modelling of AM processes, and their applications in various industry.
2. Showcase the various case study based on AM.
3. Provide the basis knowledge of 3D bioprinting and organ printing along with its future prospect.
4. Organized a panel discussion session for understanding the future prospect, need of AM in interdisciplinary research.

## PROGRAMME DETAILS

| 05 FEB 2023 | 06 FEB 2023 | 07 FEB 2023 | 08 FEB 2023 | 09 FEB 2023 |
|---|---|---|---|---|
| **9.00 – 9.30 INAUGURATION**<br>9.30 – 11.00 **"Medical Imaging and computed tomography - how we started and where we are headed to"** by Dr. Gaurav Mishra Pro-VC DMIHER | 9.30 – 11.00 **Investigations of Metal Alloys Manufactured by Additive Manufacturing** by Prof. Ganesh Kakandikar MIT WPU | 9.30 – 11.00 **Application of CAD and AM in Medical Sciences** by Dr. Sandeep Dahake CEO Precisurge pvt. Ltd. | 9.30 – 11.00 **Advanced Fabrication Technologies for Biomedical Applications** by Prof. Ashok Kumar, IIT Kanpur | 9.30 – 11.00 **Electron Beam Additive Manufacturing** by Prof. Karunakaran IIT Bombay |
| **11.00 – 11.30 TEA BREAK** | | | | |
| 11.30 – 1.00 **Use of Fused Deposition Modelling (FDM) for Medical Application in Developing Countries: Green Circular Economy Perspective** by Prof. A. M. Kuthe, VNIT | 11.30 – 1.00 **Case study for use of 3D printing for cranioplasty** by Prachi JRF DMIHER | 11.30 – 1.00 **Development of Innovative products using additive manufacturing and TRIZ** By Dr. Mahesh Mawale, KITS Ramtek | 11.30 – 1.00 **Advances in 3D Bioprinting and Organ-on-chip technology in Precision Medicine** by Dr. Shreya Mehrotra, IIT Kanpur | 11.30 – 1.00 **Roll of AM in Casting to Fabricate Customized Metallic Implant** By Dr. Subodh Daronde |
| **1.00 – 2.00 LUNCH** | | | | |
| 2.00 – 3.30 **An Overview of Additive Manufacturing** by Dr. Ashutosh Bagde | 2.00 – 3.30 **Rapid Manufacturing** by Dr. Mahesh Shinde, SGGS Nanded | 2.00 – 3.30 **Medical Device Innovation: Research to commercialization** By Dr. Pranav Sapkal Co-founder LUCID implant | 2.00 – 3.30 **3D Bioprinting:** by Miss Vijeta Jaiswal, Cellink | 2.00 – 3.30 **Additive manufacturing boon to digital dentistry** by Mr. Abhijit Raut |
| **3.30 – 4.00 TEA BREAK** | | | | |
| 4.00 – 6.00 **Hand on session on Medical Data for AM** by Ashish Bhagat, Sr. CAD Engineer DMIHER | 4.00 – 6.00 **Hand on session on AM** by Ashish Bhagat, Sr. CAD Engineer DMIHER | 4.00 – 6.00 **3D scanning and data generation** by Ashish Bhagat, Sr. CAD Engineer DMIHER | 4.00 – 6.00 **Hand on Bioprinting** by Aditi Bharadwaj Research scholar DMIHER | 4.00 – 5.30 **Assessment & Feedback,** Dr. Ashutosh Bagde Session XX Valedictory |