

AICTE Training and Learning (ATAL) Academy
Sponsored

Six - Days

Online Faculty Development Programme (FDP)



on

**3D Printing for Biomedical Applications: Shaping
the Future of Healthcare in Industry 4.0**
13 – 18th January 2025



Organized By



Department of Mechanical Engineering
National Institute of Technology
Kurukshetra, Haryana, INDIA

Key Points:

- ✓ There is “No Charge for Registration, Course and Certification”.
- ✓ **Registration will be done through ATAL Academy website only.** The interested participants can refer the following link to register:
<https://atalacademy.aicte-india.org/signup>
- ✓ Applications will be considered on first come - first serve basis.
- ✓ **Participants with min 80% attendance, at least 70% marks in test, and feedback about FDP etc. will be eligible to get certificates by ATAL Academy.**
- ✓ All correspondence/clarifications should be addressed to **Dr. Ravi Pratap Singh** via, E-mail: singhrp@nitkkr.ac.in

Organizing Committee

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INSTITUTE: NIT Kurukshetra

VISION

“To be a role-model in technical education and research, responsive to global challenges”.

MISSION

“To impart quality technical education that develops innovative professionals and entrepreneurs”.

“To undertake research that generates cutting-edge technologies and futuristic knowledge, focusing on the socio-economic needs”.

ABOUT

National Institute of Technology (formerly known as Regional Engineering College, Kurukshetra in 1963) was conferred upon the status of Institution of National Importance (Deemed University) on June 26, 2002. The Institute has B.Tech., M.Tech, MBA and MCA courses in various disciplines with annual intake of about 1500 students. Institute also offers excellent facilities for advanced research in the emerging areas of Science and Technology leading to Ph.D. degree. The institute has well-qualified and dedicated faculty along with splendid supporting staff, laboratories and other infrastructure. The infrastructure is geared to enable the institute to produce technical personnel of high quality.



DEPARTMENT

The Department of Mechanical Engineering started its illustrious journey in 1963. It can boast of one of the most talented faculty among the engineering institutes. There are various research and development projects in Mechanical Engineering that are strongly supported by the institute. Since the inception of the department, it has been the source of attraction for meritorious UG, PG and PhD students. The departmental labs are equipped with a wide range of machines, tools and equipment to broaden the practical knowledge of students. It also incorporates labs to carry out design, simulation and development on latest computer systems. The department lays strong emphasis on helping students acquire practical knowledge. It has played a key role in motivating and assisting the students to freely explore the departmental resources and carry out academic activities.

Overview of the Course:

Bioprinting is an additive bio-manufacturing process where biomaterials, cells and bioactive factors are combined in the form of bioink and printed in a layer-by-layer manner to create tissue-like structures. Based upon the operation, this technology can be classified into three major categories, inkjet-based, extrusion-based, and laser-assisted bioprinting. Applications of 3D bioprinting, both actual and potential, can be categorized into several broad classes, including tissue and organ fabrication; creation of customized prosthesis, and implants; development of anatomical and surgical models; construction of in vitro tissue/organ/cancer model and pharmaceutical research involving drug dosage forms, delivery, and discovery. The application of 3D bioprinting in medicine brings in many benefits, including the customization and personalization of medical products, drugs, and equipment; cost-effectiveness; increased productivity; the democratization of design and manufacturing; and enhanced collaboration.

Objectives of the Course:

The course is designed to impart knowledge and skills related to 3D bioprinting technologies, CT scan to STL model, STL file repairing, tissue engineering, pre-surgical planning using 3D printing etc.

Learning Outcomes:

- ✓ Introduction to 3D Printing
- ✓ An overview of 3D Bioprinting in Medicine
- ✓ Design aspects of 3D Bioprinting
- ✓ Introduction to CAD and its use for Medical Design
- ✓ Materials and designing for 3D printed implants
- ✓ 3D Printing for Cardiovascular Applications
- ✓ 3D Printing in Densitry and Maxillofacial Surgery
- ✓ 3D printing for creation of anatomical and surgical models
- ✓ 3D printing for customized prostheses and implants
- ✓ 4D Printing for Biomedical Applications

Resource Persons:

Faculty / Experts from IITs/IIITs/NITs, Industries and reputed institutions / organizations / research labs who are well known experts in the domain of 3D Printing for Biomedical Applications will be the resource persons.

Important dates:

Registration before	01 st January 2025
Communication of acceptance	06 th January 2025
FDP dates	13 – 18th January 2025

Note:

In order to complete your registration in ATAL FDP portal, follow the given steps:

1. Visit <https://atalacademy.aicte-india.org/signup>
2. Register as a participant → Fill your details
3. Select FDPs → Month → January → Thrust Area → Engineering → Mode → Online
4. Select Title - 3D Printing for Biomedical Applications: Shaping the Future of Healthcare in Industry 4.0 (Application Number: **1730699938**)

Who should attend?

The PG Scholars, research scholars, and faculty members AICTE/UGC/Central Government approved institutions, and Industry Professionals and the faculty members, research scholars, PG Scholars of host institution are eligible to attend.

ATAL Academy

AICTE Training and Learning (ATAL) Academy is established with the vision “To empower faculty to achieve goals of Higher Education such as access, equity and quality”. ATAL academy will conduct a series of workshops in thrust areas identified by AICTE.