

**One-week Self-Sponsored Short-Term Skill  
Development Training Program on  
“3D Printing Technology in Bioengineering”  
23-27 March 2026**

**REGISTRATION FORM**

Name: .....

Qualification: .....

College/Institute: .....

Permanent Address: .....

E-mail: .....

Mobile No.: .....

UPI Amount & UTR No .....Dated.....

Signature of the Participant Place:  
(Draft in favour of DIRECTOR, NIT, Raipur, payable  
at SBI, GCET Raipur Branch.)

Registration charge including 18% GST:

|                              |            |
|------------------------------|------------|
| UG Students/NIT RR students: | Rs 590/-   |
| Faculty/PG/Research Scholars | Rs. 885/-  |
| For Industry Delegates       | Rs. 1770/- |

**Note:**

- Participant must send the scanned copy of the filled registration form along with the proof of payment through email to the co-ordinators. and fill up the following google form mandatorily.  
<https://forms.gle/rg2a8XscCedG9RWC6>

**Payment should be made to:**

Account No.: 38027633250  
Name: Director, NIT Raipur  
IFSC: SBIN0002852

**UPI QR Scan**



**NIT RAIPUR**

**Chief Patron**

Dr. N.V. Ramana Rao  
Director, National Institute of Technology,  
Raipur

**Patron**

Prof. Shubhojit Ghosh, Chairman, CEC,  
NIT Raipur,

**Chairperson**

Dr. Pratima Gupta,  
Head, Dept of Biotechnology, National  
Institute of Technology, Raipur

**Coordinators**

**Dr. Chinmaya Mahapatra**  
Assistant Professor,  
Dept of Biotechnology  
National Institute of Technology  
Raipur-492010. (CG)

**Dr. Manishekhar Kumar**  
Assistant Professor  
Dept of Biotechnology  
National Institute of Technology  
Raipur-492010. (CG)

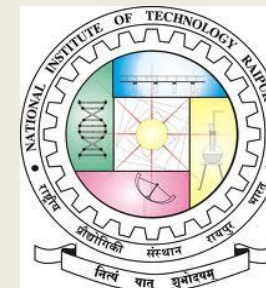
**Dr. J. Satya Eswari**  
Associate Professor  
Dept of Biotechnology  
National Institute of Technology  
Raipur-492010. (CG)

**One-week Self-Sponsored Short-Term  
Skill Development Training Program on  
“3D Printing Technology in  
Bioengineering”**

**23-27 March 2026**

Organized by

**Department of Biotechnology**



National Institute of Technology Raipur  
G.E. Road, Raipur-492010  
Chhattisgarh

**Contact Us:**

Dr. Chinmaya Mahapatra, Assistant Professor, NIT  
Raipur, Mob. +91 9422291084  
Email: [cmahapatra.bt@nitrr.ac.in](mailto:cmahapatra.bt@nitrr.ac.in)

Dr. Manishekhar Kumar, Assistant Professor  
Dept of Biotechnology, NIT Raipur  
Email: [mkumar.bt@nitrr.ac.in](mailto:mkumar.bt@nitrr.ac.in)

Dr. J. Satya Eswari, Associate Professor, Dept of  
Biotechnology, NIT Raipur  
Email: [satyaeswarj.bt@nitrr.ac.in](mailto:satyaeswarj.bt@nitrr.ac.in)

## About the Institute:

National Institute of Technology Raipur, located on a 100-acre campus in the capital city of Chhattisgarh, is one of India's premier institutes of engineering and technology. Established in 1956 as Government Engineering College Raipur, it was inaugurated by Hon'ble Prime Minister Pt. Jawaharlal Nehru and upgraded to NIT status in 2005. The institute has grown significantly and presently offers 12 undergraduate, 11 Postgraduate (including M.C.A and M.Tech. in Applied Geology) and 18 Ph.D programs, along with active research, consultancy, and strong industry collaboration with leading organizations in the region. More details about NIT Raipur are at: <http://www.nitr.ac.in>.

## About the Department:

The Department of Biotechnology at NIT Raipur was established in 2003 and is committed to excellence in teaching, research, and innovation. The department is equipped with well-established laboratories, including Immunology, Microbiology, Bioinformatics, Cell and Molecular Biology, Environmental Biotechnology, Drugs and Pharmaceuticals, Instrumentation, Biochemistry, and Enzyme Technology labs. Faculty members actively contribute to high-quality research with regular publications in SCI-indexed journals and patents. The department currently offers B.Tech and Ph.D. programs, fostering skilled biotechnologists and future researchers.

## Objective of the program:

- To provide participants with a comprehensive understanding of both fundamental and advanced concepts of "3D Printing Technology in Bioengineering".
- To familiarize participants with current research advancements and industrial and clinical applications in bioprinting and bio-ink development.
- To foster interdisciplinary learning and enhance collaboration among academia, research laboratories, industry stakeholders, and clinicians.
- To build a skilled workforce capable of addressing real-world challenges in 3D printing for biotechnology and contributing to sustainable technological growth.

## Scope of the Workshop

This one-week self-sponsored short-term training program aims to equip participants with a comprehensive understanding of 3D bioprinting- an additive manufacturing process that layers "bio-inks" (cells, growth factors, and biomaterials) to create structures that imitate natural tissue characteristics. It is the bridge between traditional tissue engineering and precise, automated fabrication.

The program will cover Organ and Tissue Replacement to engineer fully functional human organs (like kidneys or hearts) to eliminate transplant waiting lists and the risk of organ rejection. Precision Tissue Modelling to create highly accurate, patient-specific tissue models for studying disease progression, such as how cancer cells metastasize within a specific organ's architecture. High-Throughput Drug Testing to develop "Organ-on-a-Chip" systems that allow pharmaceutical companies to test drug toxicity and efficacy on human cells before moving to clinical trials, potentially replacing animal testing. Customized Regenerative Medicine to print "bandages" or grafts (like skin for burn victims or cartilage for joints) that match the exact geometry of the patient's injury. Emphasis will be placed on Materials Science (Bio-inks) and Clinical applications, such as 3D bioproducts. Through expert-led lectures, participants will explore innovative methodologies, analytical approaches, and emerging technologies that support 3D Bioprinting.

The program encourages interdisciplinary learning and fosters the integration of advanced 3D Bioprinting strategies with practical, real-world applications. This workshop will explore advanced techniques in 3D Bioprinting relevant to tissue engineering applications. It will cover modern approaches such as Medical Research & Development, Skin Grafts, bioprinting techniques, cell incorporation processes, and organ repair functionality. The program also includes methods used in bioink development, nanoparticle incorporation, and technological advancements driving these processes. Participants will engage with practical applications through these intense lectures focused on bioprinting, printing process optimization, real-time monitoring, and analytical assessment of cell-material integration.

## Course Outline:

- **Bio-ink Development**
  - ✓ Overview of Bio-ink
  - ✓ Types and Properties of Bio-ink
  - ✓ Printability Physics
- **Intelligent & AI-Driven Bioprinting**
  - ✓ AI-Optimized Bio-inks
  - ✓ Real-time Error Correction
  - ✓ Predictive Tissue Maturation
- **Advanced "Smart" Bio-inks**
  - ✓ Nano-engineered Inks
  - ✓ Stimuli-Responsive (4D) Materials
  - ✓ Animal-Free (Recombinant) Collagen
- **Specializations in Disease Modeling**
  - ✓ Tumor-on-a-Chip
  - ✓ Viral Infection Models
  - ✓ Keloid and Fibrosis Models
- **Surgical & Clinical Integration**
  - ✓ In Situ (Bedside) Bioprinting
  - ✓ Thoracic & Orthopedic Customization
  - ✓ Space Bioprinting

**For More Details Click**

<https://www.nitr.ac.in/conference.php>