



BIANNUAL NEWSLETTER

# इरावतः

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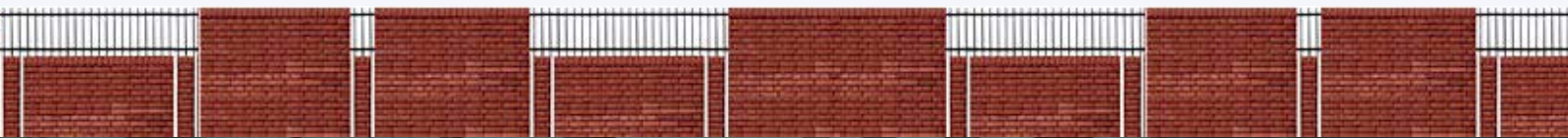


Gangwal School of Medical Sciences and Technology, IIT Kanpur



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- Collaborations and Associations
- Visits and Discussions
- Events





# About the Medical School

The Gangwal School of Medical Sciences and Technology (GSMST) at IIT Kanpur is a pioneering institution dedicated to advancing medical education, research, and innovation. Established with a vision to bridge the gap between engineering and medicine, GSMST integrates cutting-edge technology with medical sciences to address contemporary healthcare challenges.

GSMST aims to provide a robust platform for interdisciplinary research and collaborative projects. The Medical School is committed to nurturing future leaders in medical technology and healthcare, fostering an environment that encourages innovative solutions and transformative breakthroughs. Through partnerships with leading global institutions and focus on translational research, GSMST aims to create a significant impact on healthcare delivery and improve the quality of life for communities both locally and globally.

# Research

## AUTONOMOUS SMART WHEELCHAIR

Design and Development of Autonomous Stairs/Escalator Climbing & Self-navigating Smart Wheelchair.

**PI: Prof. Bishakh Bhattacharya**



## PORTABLE X-RAY

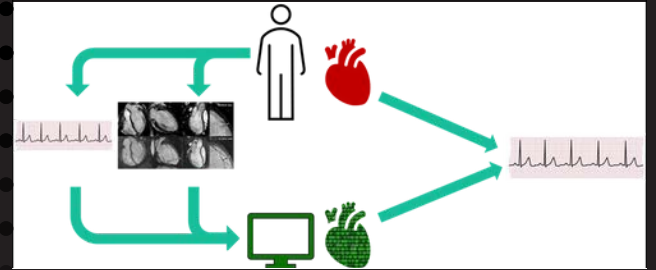
A portable AI-enabled X-ray system, designed to provide enhanced imaging capabilities in remote areas.

**PI: Prof. Aditya H Kelkar**



## CARDIAC DIGITAL TWIN

This project focuses on developing an AI-based personalized cardiac electrophysiology simulation in collaboration with clinical advisors from



**PI: Prof. Ketan Rajawat**

## PROJECT HRIDYANTRA: LVAD

LVAD is a groundbreaking initiative focused on developing a Left Ventricular Assist Device (LVAD) with full maglev technology and advanced electronics. Under the clinical advisory of leading experts from renowned institutions like Narayana Hrudayalaya, Medanta, KIMS, FORTIS, Apollo, and AIIMS, the project is progressing through key stages, including endurance tests with human blood and large animal trials.

**PI: Prof. Niraj Sinha**



# Collaborations & Associations

## MoU with ICICI Foundation for Inclusive Growth



The Indian Institute of Technology Kanpur (IITK) and ICICI Foundation for Inclusive Growth (ICICI Foundation), the CSR arm of ICICI Bank, signed a Memorandum of Understanding (MoU) to work together on a Digital Health Stack project towards advancing and strengthening healthcare. The Stack will be available for use in the public healthcare system, starting with the State of Uttar Pradesh. The ICICI Foundation will support this initiative with a significant fund requirement over multiple years.



September 17, 2024

# Collaborations & Associations



IIM Lucknow

MoU with IIM Lucknow



IIT Kanpur

IIT Kanpur signed an MoU with IIM Lucknow to offer an academic Postgraduate Joint Degree Program on "Healthcare Management".



September 26, 2024

# Collaborations & Associations



IIT Kanpur signed an agreement with The Global Consortium of Innovation and Engineering in Medicine. It is an international public-private-government collaborative serving the world as the premier global network to advance medicine through engineering and innovation. The consortium brings together medical schools, universities, researchers and students, industry and government leaders, philanthropists, and foundations from across the globe to change the future of medicine through collaboration. Through the Global Consortium of Innovation and Engineering in Medicine, the University of Illinois Urbana-Champaign is known as an international leader in the growing movement to democratize and revolutionize health care through engineering and innovation.



November 04, 2024

# Visits and Discussions

## Guests from PAN-IIT Meet visit



December 06, 2024

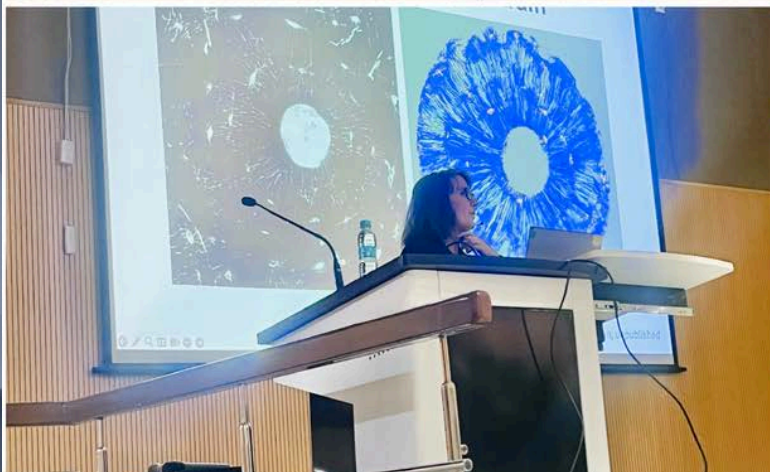


# Visits and Discussions

University of Melbourne



November, 2024



# Visits and Discussions



Prof. Perumal Nithiarasu  
Associate Dean for Research  
Innovation and Impact for  
Science and Engineering  
Swansea University



September 21 - October 19, 2024

During his visit, Prof. Nithiarasu delivered a lecture on Digital Twins in Engineering and healthcare. His talk explored three approaches to building digital twins, emphasizing challenges in speed and accuracy and discussing their applications in engineering and healthcare. He also engaged in multiple discussions and collaborations.

Key outcomes of his engagements included drafting a grant proposal on cardiovascular health forecasting, sharing systemic circulation Python code for research, and providing feedback on IIT Kanpur's LVAD project. He also proposed a Kanpur-Heart model in collaboration with the Cardiovascular and AI Centres of Excellence. His visit extended beyond IIT Kanpur, fostering connections with PSG Hospital Coimbatore and IIT Madras for future joint research.

Finally, Prof. Nithiarasu participated in a post-visit discussion on PINNs (Physics-Informed Neural Networks) and contributed to planning the BioMedEng Workshop for Summer 2025. His visit significantly strengthened research collaborations and set the stage for future interdisciplinary projects.



## ASEAN Fellowship meeting for DST international division at GSMST

The Medical School hosted selection meeting for ASEAN-Indian Research Training Fellowship (AI-RTF) scheme of the Anusandhan National Research Foundation. Dr Arvind Chaudhary (ANRF) participated in this meeting.

## Selection meeting for ASEAN-Indian Research Training Fellowship (AI-RTF)



DATE  
09 JULY 2024



July 09, 2024

## Bansal Workshop Series Joint online research colloquium themed "Biological and Chemical Approaches to Combat AMR"

As part of the activities to foster collaborations between IIT Kanpur and The University of Melbourne, the Medical School organized a joint online research colloquium themed "Biological and Chemical Approaches to Combat AMR"

This colloquium was a part of the Bansal Workshop Series on Clinical & Community Medicine. It featured leading experts in the field from Faculty of Medicine, Dentistry and Health Sciences, The University of Melbourne

& IIT Kanpur.



July 26, 2024

GSMST, IIT Kanpur  
Faculty of Medicine, Dentistry,  
and Health Sciences (FMDHS),  
University of Melbourne

### Biological and Chemical Approaches to Combat AMR

Bansal Workshop Series on Clinical & Community Medicine

#### SPEAKERS

IIT Kanpur	University of Melbourne
Prof. Ashwani Thakur	Prof. Benjamin Howden
Dr. Ritika Gautam Singh	Dr. Jessica Webb
Dr. Dharmaraja Allimuthu	Dr. Sacha Pidot
Dr. Saravanan Matheshwaran	Dr. Aimee Tan
Dr. Grace Kaul	Dr. Dweipayan Goswami

QR code: Scan to join

**JULY 26<sup>th</sup> 2024**  
9:00 am to 12:30 pm, IST  
1:30 pm to 5:00 pm, AEST



This conference brought together leading experts to address the alarming rise in metabolic disorders across North India, with a focus on obesity, pre-diabetes, and related conditions. This event emphasized the importance of India-specific studies and solutions to develop effective interventions.



September 27, 2024



## Innovations in NeuroTech

Showcasing Synergies Between Clinical Neuroscience, Computation, and Engineering

This event brought together experts from clinical neuroscience, computational neuroscience, and neuroengineering. The event served as a dynamic platform for interdisciplinary collaboration among experts in clinical neuroscience, computational neuroscience, and neuro-engineering. The workshop showcased innovations in brain monitoring, implants, epilepsy care, and advances in neuromodulation.



November 21, 2024



This symposium aimed to address the challenges by disseminating the state of the arts in five specific channels:

- Integration of cutting-edge smart materials,
- Wearable Intelligent Devices and Flexible Electronics
- Application of AI and Advanced Control
- Bio-inspired metastructures and compliant mechanisms
- Ambient Assisted Living Technology.



November 22-23, 2024



## SPARC Project Symposium “Point-of-Care Healthcare Devices” & Pant Workshop Series on Medical Technology & Future Medicine

GSMST organized the SPARC Symposium at IIT Kanpur, featuring an outstanding lineup of speakers from the University of Melbourne and Amrita Vishwa Vidyapeetham, Amritapuri. This prestigious event aimed to foster interdisciplinary discussions and collaborations in areas such as tissue engineering, nanomaterials, genomics, and immune response mechanisms.

The symposium facilitated knowledge sharing between faculty from IIT Kanpur and the University of Melbourne, opening avenues for exploring innovative research directions and forging impactful collaborations in biomedical sciences, computational biology, and infection studies. Join us in this vibrant exchange of ideas to shape the future of biomedical research.



November 25-27, 2024

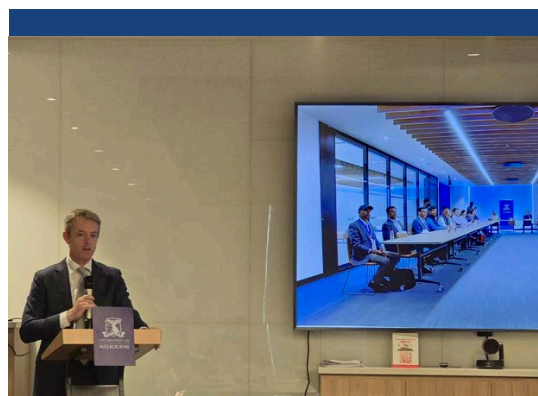


## FMDHS, University of Melbourne - GSMST, IIT Kanpur SPARC Symposium

on

India-Australia Cooperation in Medical Education and Biomedical Research  
November 29th, 2024  
Melbourne Global Centre - Delhi

This event was focused on discussions addressing challenges in grading systems, the need for competency-based education, and the integration of AI to improve teaching and assessments. Experts advocated for embracing generative AI balanced with traditional methods to create robust learning environments.



His Excellency Nicholas McCaffrey, Deputy High Commissioner of the Australian High Commission in India, addressed the event.

The event also emphasized international partnerships, proposing joint PhD programs, student and expert exchanges, and thematic collaborations in AI-driven education and biomedical research. Flagship projects in rural healthcare and telehealth were suggested as potential focus areas.

Key goals were identified for the next 2-3 years that include establishing thematic focus groups and creating collaborative platforms to drive global advancements in medical education.



November 29, 2024

GANGWAL SCHOOL OF MEDICAL SCIENCES AND TECHNOLOGY

**JALAN DISTINGUISHED LECTURE SERIES IN MEDTECH INNOVATION**

Development and application of biostatistical methods to improve predictive modeling of clinical data for precision medicine

**Prof. Muthuraman Muthuraman**  
University of Augsburg, Germany



SCAN TO JOIN



JULY 22, 2024  
5.00 PM IST



## Jalan Distinguished Lecture Series

As part of the Jalan Distinguished Lecture Series in MedTech Innovation, the Medical School organized a talk by Prof Muthuraman Muthuraman, University of Augsburg, Germany.



July 22, 2024


GANGWAL SCHOOL OF MEDICAL SCIENCES AND TECHNOLOGY  
IIT KANPUR

Joneja Colloquium Series in Clinical Medicine  
**Understanding Cancers!**

- Can we reduce our risk of cancers?
- Signs & symptoms of various Cancers
- Role of Robotics, AI and Innovation in Cancer Management

**Speaker**  
**Dr. Shabnam Bashir**  
MBBS, DNB Surgery, MRCS, FAIS, FACRSI, FMAS  
Senior Consultant Breast & Colorectal Cancer Surgeries, Kashmir

- Executive Committee Member Association of Colon & Rectal Surgeons of India
- Ex-Co Founder Division of Colorectal Surgeries Apollo Hospital, Bangalore
- Core Founder Member - Rectal Cancer Treatment Outcome Group
- State Mentor of ASI for Women Surgery Residents of J&K



MFCEM, IIT Kanpur

August 01, 2024

4:30 pm - 5:30 pm

## Joneja Colloquium Series in Clinical Medicine

Under the aegis of Joneja Colloquium Series in Clinical Medicine, the Medical School organized an exciting talk on "Understanding Cancers!" by Dr. Shabnam Bashir, Senior Consultant Breast & Colorectal Cancer Surgeries, Kashmir.



August 01, 2024



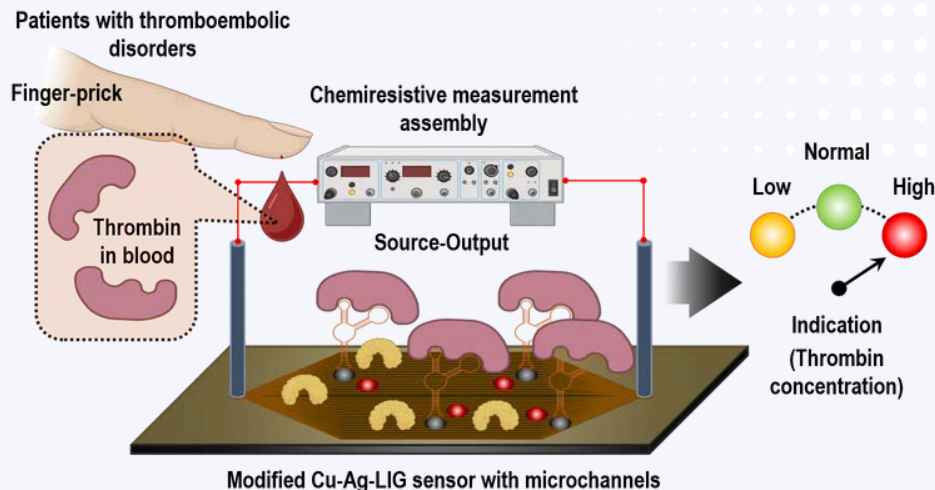
IIT Kanpur hosted Samanvay 2024, a one-day corporate engagement and thought leadership event uniting over 50 corporate leaders, researchers, and academicians to bridge industry-academia gaps. Led by Director Prof. Manindra Agrawal, the event highlighted innovation in translating scientific discovery to practical application.



Key showcases included platforms like SIIC, C3i Hub, IITK Technopark, Kotak School of Sustainability, Gangwal School of Medical Sciences and Technology, and cutting-edge research facilities such as the National Wind Tunnel and Experimental Animal Facility. Samanvay fostered collaboration, showcased IITK's startup ecosystem, and offered corporates opportunities for partnerships, talent discovery, and tech exploration.



November 28-29, 2024



## ADVANTAGES

- 1 Single step fabrication
- 2 Precise and robust
- 3 Long shelf life
- 4 Economical
- 5 Easy to use

## Point-of-care-diagnostics: A recent publication by Prof. Nishith Verma and Prof. Santosh K Misra

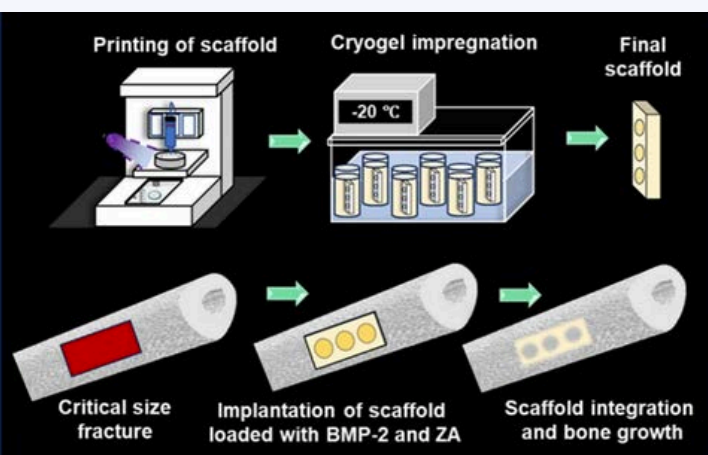
Rahul Gupta, Tamojit Santra, Santosh K. Misra, Nishith Verma,

Cu-Ag nanoparticles-dispersed and microchannel textured-laser induced graphene: A chemiresistive aptasensor for thrombin

Microchemical Journal, Volume 207, 2024

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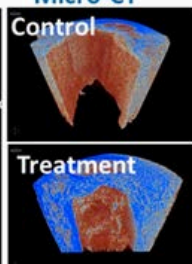
ISSN 0026-265X



### Surgical Procedure



### Micro-CT



One of the COEs of GSMST, headed by Prof. Ashok Kumar, had their recent work on functionalized 3D-printed scaffold featured in the Wiley Advanced Healthcare Materials.

### Reference

Nikhil, A.; Gugjoo, M. B.; Das, A.; Ahmad, S. M.; Kumar, A. 3D-Printed-Cryogel-Impregnated Functionalized Scaffold Augments Bone Regeneration in Critical Tibia Fracture in Goat. *Adv. Healthcare Mater.* 2024, 13 (24), 2402619.

# Infrastructure



The construction of the Gangwal Medical School started in November 2023. Tata Consulting Engineers Limited (TCE) is the Project Management Consultant (PMC) and Larsen & Toubro (L&T) is the contractor.

# Visual Highlights



Team from the University of Melbourne visit GSMST, IIT Kanpur for the SPARC Symposium



GSMST at Samanvay 2024



His Excellency Nicholas McCaffrey, Deputy High Commissioner of Australian High Commission in India addressed the SPARC Symposium on India-Australia Cooperation in Medical Education and Biomedical Research.



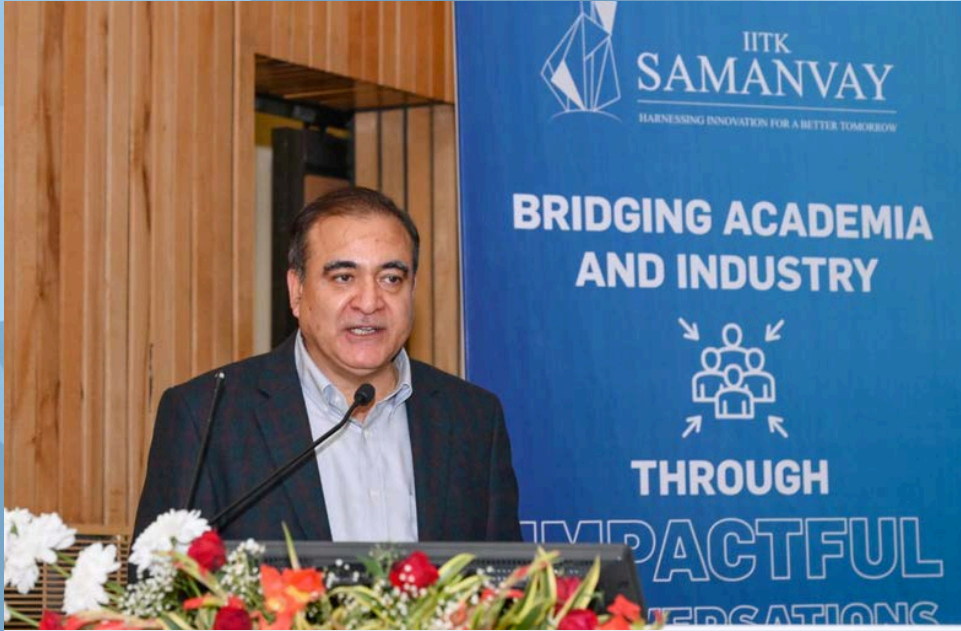
**A group of faculty from The University of Melbourne visited the GSMST construction site.**



**Dr. Shabnam Bashir gave an insightful talk on "Understanding Cancers!"**



**IIT Kanpur - IIM Lucknow MoU signing**



**Prof. Ashok Kumar representing GSMST at SAMANVAY 2024.**



**The International Research Symposium on Advancements in Precision Healthcare Robotics and Assistive Technology., November 22-23, 2024.**

# Contact Us

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