



BIANNUAL NEWSLETTER

# इरावतः

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Gangwal School of Medical Sciences and Technology, IIT Kanpur



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# Director, IIT Kanpur



## **Prof. Manindra Agrawal** **Director** **IIT Kanpur**

Our heartfelt congratulations to the distinguished alumnus and faculty member of IIT Kanpur, Prof. Manindra Agrawal, on his appointment as the new Director of IIT Kanpur.

Prof. Agrawal is a celebrated academic and researcher, known for his remarkable contributions to mathematics and computer science. He has been awarded several prestigious honors, including the Fulkerson Prize, Clay Research Award, the Gödel Prize, and the Shanti Swarup Bhatnagar Prize. In recognition of his significant achievements, he was the recipient of the first Infosys Mathematics Prize for outstanding contributions to mathematics and was honored with the Padma Shri in 2013.

Prof. Agrawal is a Fellow of several distinguished scientific academies, including FNA, FASc, FNASc, FTWAS, and NAS (USA).

## **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

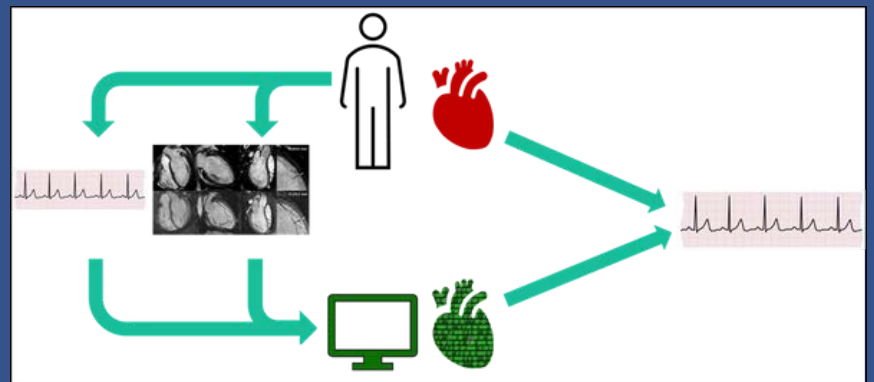
## PROJECT HRIDYANTRA: LVAD

The Cardiovascular & Pulmonary Research team is advancing Project Hridayantara: LVAD, 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.



## CARDIAC DIGITAL TWIN

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



Computer vision (AI), finite element methods, and optimization techniques are used in this project. The immediate application of this research is to treat ventricular tachycardia by providing ablation targets, with the technology already FDA-approved for John Hopkins' use.

# Research



## Flagship project: PVAD

The pVAD (percutaneous Ventricular Assist Device) project, a flagship initiative under the Cardiovascular & Pulmonary Research team, aims to address acute cardiovascular diseases and high-risk coronary interventions. By developing a local alternative, the project seeks to reduce dependency on imports and provide a minimally invasive solution. I

## NON INVASIVE IMAGING: ENDOSCOPE AND PORTABLE X-RAY

This project is spearheaded by a team of faculty from various departments. Key innovations include:

- Lens-free imaging for endoscopy
- Label-free, wide-field microscopy
- A portable AI-enabled X-ray system, designed to provide enhanced imaging capabilities in remote areas.

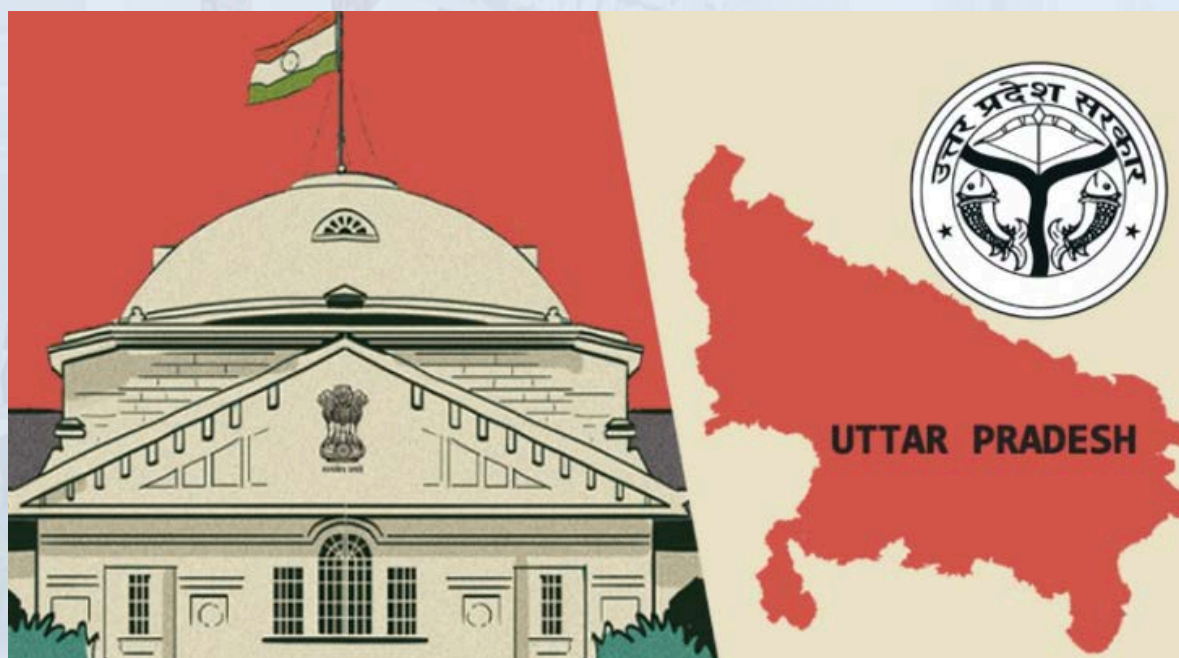
These advancements, supported by experts from Physics, Electrical Engineering, Biomedical Sciences, and more, promise to revolutionize medical imaging.



# Collaborations & Associations

The Gangwal School of Medical Sciences and Technology gained ground in research and innovation by signing several memorandum of understanding with renowned institutions, government agencies, and research entities.

## Mou with Department of Medical Health and Family Welfare, Government of Uttar Pradesh - Uttar Pradesh Digital Health Stack



On February 27, 2024 The Gangwal School of Medical Sciences and Technology at Indian Institute of Technology Kanpur and the Department of Medical Health and Family Welfare, Government of Uttar Pradesh announced the signing of a Memorandum of Understanding (MoU) to revolutionize healthcare delivery and advance tele-medicine facilities in the state through the power of Artificial Intelligence (AI). The MoU outlines several key areas of collaboration, including anchoring tele-medicine hubs and enhancing the quality of tele-medicine services, implementing AI-based solutions to address population health impact, developing point-of-care diagnostics to drive program improvements, conducting competency-based capacity building for health cadres, and utilizing database predictions and analysis for informed decision-making.

# Collaborations & Associations



IIT Kanpur

MoU with Centro Nazionale di Adroterapia Oncologica in Pavia, Italy



CNAO, Italy

On March 7, 2024 GSMST signed a Memorandum of Understanding with Fondazione CNAO - Centro Nazionale di Adroterapia Oncologica in Pavia, Italy, yesterday to establish a joint research programme.

CNAO established the first Hadron Therapy Centre in Italy. Hadrontherapy is a type of radiotherapy that uses "hadrons" (protons and carbon ions) to treat inoperable or radioresistant tumours, as opposed to traditional radiotherapy that uses X-rays or electrons. IIT Kanpur, through its Gangwal School of Medical Sciences and Technology, will collaborate with CNAO on a "Capacity Building Programme" for Hadron Therapy in India.



IIT Kanpur

MoU with Armed forces Medical Services, Ministry of Defence



Armed Forces Medical Services


On April 18, 2024 Gangwal School of Medical Sciences and Technology, IIT Kanpur signed a MoU with the Armed Forces Medical Services aimed at developing technologies to address healthcare problems faced by soldiers in difficult terrains.


# Visits and Discussions

IIT Kanpur recently witnessed a series of significant visits and discussions, highlighting its growing influence and commitment to advancing research and collaboration in various fields. These visits and discussions reflect the Medical School's strategic focus on expanding its global partnerships and enhancing its research capabilities to address pressing global and national challenges.



Distinguished alumnus Mr. Arun Seth visited the Medical School in February 2024.

**IIT KANPUR**  
Indian Institute of Technology, Kanpur

**IIT Kanpur**  
Gangwal School  
of Medical Sciences and Technology

*Shape the future of*  
**Healthcare & MedTech**


*You are cordially invited to a momentous evening with IIT Kanpur to witness the future of healthcare unfold as we introduce the pioneering*

**GANGWAL SCHOOL OF  
MEDICAL SCIENCES AND TECHNOLOGY**  
— & —  
**YADUPATI SINGHANIA SUPER SPECIALITY HOSPITAL**

It is the first-of-its-kind institution in the country driving biological advancements through technology interventions.

Join us for an exclusive evening dedicated to a new era of healthcare excellence.

<b>15</b> March 2024 7 PM Onwards	Venue: Opal Hall, 9th floor The Landmark Tower, Kanpur	RSVP: Ms. Ankita Dwivedi Sr. Manager IITK Development Foundation +(91) 9519123131
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IIT Kanpur hosted an evening dedicated to the introduction of the Gangwal School of Medical Sciences and Technology, and the Yadupati Singhania Super Specialty Hospital to industry leaders and dignitaries from the state of Uttar Pradesh on 15th March 2024.

# Visits and Discussions



Prof Anirudh Desai



Prof Chris Pakes

On March 22, 2024 Prof Chris Pakes, Pro-Vice Chancellor, Graduate & Global Research and Prof Anirudh Desai, Research Professor & Director, Centre for Technology Infusion, from University, Melbourne visited GSMST.



On April 8, 2024 IIT Kanpur hosted a delegation from the University of Melbourne, marking a significant step toward international academic collaboration. The visit focused on several critical areas of mutual interest, including Renewable Energy sources, Climate Change, Water Quality Monitoring, and Remote Sensing. These discussions underscored the commitment of both institutions to addressing global challenges through cutting-edge research and innovation.



On May 27, 2024 a team from the Armed Forces Medical Services (AFMS), led by Major General Dharmesh, Additional Director General AFMS (Medical Research, Health & Training), visited IIT Kanpur for an interaction with the Director and faculty members. This visit aimed to explore possible areas of collaboration between the two institutions, building upon a Memorandum of Understanding (MoU) signed earlier this year between the Director General of AFMS (DGAFMS) and IIT Kanpur.



On April 12, 2024 a meeting was held with Prof. Motonari Uesugi, Director of the Institute for Integrated Cell-Material Sciences (iCeMS) at Kyoto University, Japan. This meeting aimed to explore potential avenues for cooperation between GSMST, IIT Kanpur and Kyoto University.

# Events

## IIT-K, Laurus Labs to jointly work on gene therapy assets

TIMES NEWS NETWORK

**Kanpur:** In a historic milestone, the Indian Institute of Technology Kanpur (IITK) has signed a memorandum of agreement (MOA) with Laurus Labs to introduce groundbreaking gene therapy assets to the market. This collaboration marks a paradigm shift with regards to innovation and advancement in the field of bioengineering in India.

As per the agreement, IIT Kanpur will transfer several gene therapy assets through in-licensing to Laurus Labs, which will provide a research grant to facilitate their progression through preclinical development.

Laurus Labs will also fund necessary clinical trials and spearhead the launch of these cutting-edge products not only in India but also in emerging markets. In addition, Laurus Labs will establish a state-of-the-art Good Manufacturing Practice (GMP) facility at IIT Kanpur's Techno Park, bolstering the production capabilities of gene therapy products.

IIT Kanpur's Department of Biological Sciences and Bioengineering (BSBE) have developed some path-breaking gene therapy assets along with delivery technologies using Adeno Associated Virus (AAV) vectors.

The AAV-based vectors, which have emerged as an important component of gene therapy in humans, have found greater importance in recent studies. Under the Molecular Genetics and Therapeutics Lab of the BSBE department at IIT Kanpur, research has

been carried out on gene therapy for retinal degeneration due to Leber congenital amaurosis, hemophilia and muscular dystrophy.

Commenting on the development, Prof Abhay Karandikar, director of IIT Kanpur said, "This is a big moment for us at IIT Kanpur when we are partnering with a leading pharma company Laurus Labs for developing novel drugs based on path-breaking research in gene therapy. With the setting up of the Gangwal School of Medical Sciences and Technology, we are committed to transformative research in affordable healthcare including novel drug discovery, medical diagnostics and therapeutics, medical devices and implants. I am confident that in the years to come, this partnership with Laurus Labs will enable affordable treatment to some of the difficult-to-treat disorders.

Echoing the sentiment, Satyanarayan Chava, CEO of Laurus Labs said, "We are very excited to partner with IIT Kanpur to bring novel gene therapy products to patients in India and other markets at an affordable pricing. This collaboration exhibits our commitment towards cell and gene therapy (CGT) space".

This groundbreaking partnership between IIT Kanpur and Laurus Labs will, on one hand, establish IIT Kanpur's pioneering role in furthering gene therapy research, while on the other, would enhance Laurus Labs' presence as a leading company in the promising cell and gene therapy space.

Gene therapy holds promise for curing eye diseases and improving millions of lives. IIT Kanpur hosted a brainstorming session on ocular gene therapy with top ophthalmologists from Sankara Nethralaya, CMC Vellore, LV Prasad Eye Institute, and AIIMS New Delhi. Discussions focused on clinical trials for Leber Congenital Amaurosis 2, a severe inherited retinal disease. Dr. Rajaram Iyer from Laurus Labs also participated.



February 17, 2024



As a part of the Bansal Workshop Series on Clinical and Community Medicine, GSMST organized SMART Connect: Kick-Starting Indigenous Research with a Multi-Stakeholder Meet. This was organized in collaboration with ICMR Delhi and Cure SMA India. The meeting emphasized the need for concerted efforts to address spinal muscular atrophy (SMA). The discussions highlighted the importance of carrier testing and the development of new approaches for drugs and biologics to combat this rare genetic disorder, reinforcing our commitment to finding viable solutions.




May 03, 2024

# Lectures


Distinguished Visiting Professor of GSMST Prof Gaurav Agarwal delivered a lecture at Technology and Innovation in Head and Neck Endocrine course of Harvard Medical school.



 March 23, 2024

As part of the Joneja Endowed Clinical Lecture series, Prof. Richard Strugnell from the University of Melbourne and The Doherty Institute delivered an insightful lecture on Klebsiella biofilms at IIT Kanpur. The discussions focused on the role of MrkH in activating fimbriae expression and the conversion between planktonic and biofilm states through cyclic di-GMP regulation.



 April 10, 2024

Under the Pant Workshop Series on Medical Technology & Future Medicine a 2-day Symposium on "Emerging Technologies and Materials in Medicine" (ETMM-2024) was organized by one of the Center of Excellence for Materials in Medicine.



 3-4 May 2024, 2024

Pant Workshop Series  
on Medical Technology &  
Future Medicine

## Telemedicine & Digital Health

Monday, May 6, 2024



Prof. Jaideep  
Srivastava



Prof. Saroj Kanta  
Mishra



Prof. K. Ganapathy

Gangwal School of Medical Sciences and Technology (GSMST) at IIT Kanpur recently hosted a one-day workshop on "Telemedicine & Digital Health" under the Pant Workshop Series on Medical Technology and Future Medicine.

Distinguished Visiting Profs at GSMST Prof. K. Ganapathy, Dir, Apollo Telemedicine Networking Foundation & Apollo TeleHealth Services; Prof. Jaideep Srivastava, University of Minnesota; & Prof. Saroj Kanta Mishra, RML Institute of Medical Sciences Lucknow graced the occasion.



May 06, 2024



GSMST was invited to participate in the introductory meeting of Global Consortium of Innovation and Engineering in Medicine pioneered by Carle Illinois Med, University of Illinois.



May 16, 2024

## Distinguished Visiting Professor



Prof. Mike McGuckin  
Deputy Dean  
Medicine, Dentistry and Health Sciences  
The University of Melbourne

# Donor Contributions



The Uttar Pradesh Government has allocated funds in the state budget 2024-25 for the Medical School at IIT Kanpur. This investment is expected to transform the state into a knowledge hub while significantly enhancing the ease of living for its residents.

 February 10, 2024



Mr. Vikram Tannan gave a generous donation for “Vikram Tannan Dialysis facility, Urology Operation theatre and Urology research” at the Gangwal School of Medical Sciences & Technology

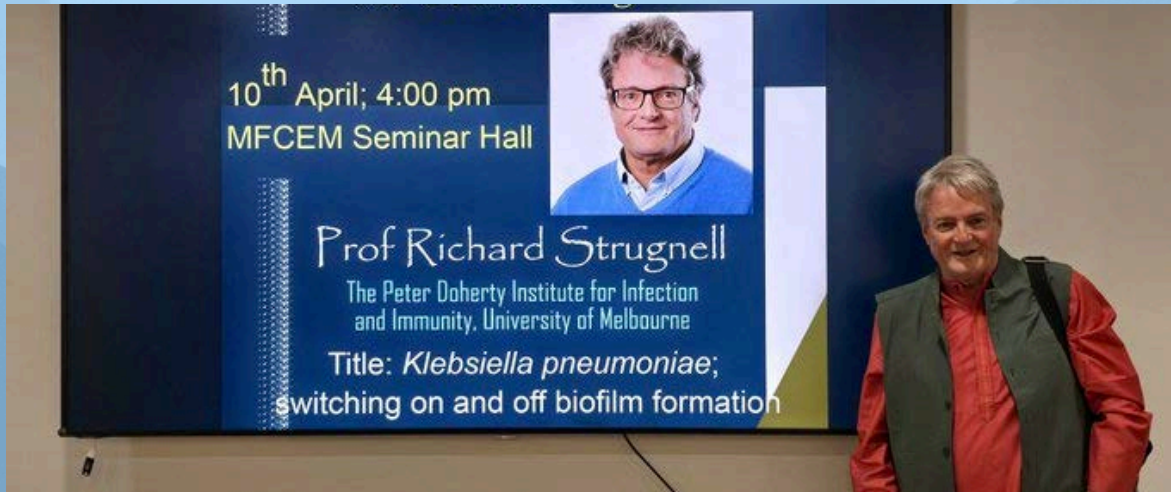
 June 10, 2024

# Infrastructure Development



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



Prof. Richard Strugnell from the University of Melbourne and The Doherty Institute delivered an insightful lecture on *Klebsiella* biofilms at IIT Kanpur.



A 2-day Symposium on "Emerging Technologies and Materials in Medicine" (ETMM-2024) was organized by the Center of Excellence for Materials in Medicine, Gangwal School of Medical Sciences and Technology.



Prof. Sandeep Verma, Head GSMST IIT Kanpur participated in 11th International Conference on Transforming Healthcare with IT 2024. He was one of the expert in a panel discussion at THIT 2024 featuring top experts - G. Padmanabhan, Sanjay Behari, T.S. Balganes, N.R. Jagannathan, Dr. Guriqbal Singh Jaiya, Rema Subramanian and Prof. K. Ganapathy.



**Delegation from the University of Melbourne visited the GSMST construction site.**



**GSMST organized Pant Workshop Series on Medical Technology and Future Medicine: Telemedicine & Digital Health.**

**Distinguished Visiting Profs at GSMST Prof. K. Ganapathy, Director, Apollo Telemedicine Networking Foundation & Apollo TeleHealth Services; Prof. Jaideep Srivastava, University of Minnesota; & Prof. Saroj Kanta Mishra, RML Institute of Medical Sciences Lucknow graced the occasion.**

Cover Page feature in The Week Magazine, June 2024 edition. Featuring path breaking technological advancement and impactful initiatives by the upcoming Gangwal School of Medical Science and Technology.



In the cabinet meeting chaired by Shri Yogi Adityanath, approval has been given to establish a 500-bed super specialty hospital along with a medical research institute at IIT Kanpur to provide better health facilities to the people of the state.

# योगी सरकार आईआईटी कानपुर में बनाएगी चिकित्सा संस्थान, नई तबादला नीति को मंजूरी

अजय त्रिवेदी

लखनऊ। उत्तर प्रदेश सरकार आईआईटी कानपुर में चिकित्सा शोध संस्थान के साथ ही सुपर स्पेशलिटी अस्पताल की स्थापना करेगी। प्रदेश सरकार ने वर्तमान सत्र के लिए तबादला नीति को मंजूरी दे दी है। मंगलवार को मुख्यमंत्री योगी आदित्यनाथ की अध्यक्षता में हुई मंत्रिपरिषद की बैठक में नए सत्र के लिए तबादला नीति सहित कुल 41 प्रस्तावों को मंजूरी दी गई है।

मंत्रिपरिषद के फैसलों की जानकारी देते हुए प्रदेश के वित्त एवं संसदीय कार्य मंत्री सुरेश खन्ना ने बताया कि लखीमपुर में नया हवाई अड्डा बनाने और सोनभद्र जिले के ओबरा में बन रहे 2 ताप बिजली घरों की लागत बढ़ाने के प्रस्ताव को मंजूरी दे दी गई है। भारतीय प्रौद्योगिकी संस्थान (आईआईटी) कानपुर में मेडिकल रिसर्च सेंटर बनाया जाएगा।

इसके साथ ही यहां 500 बेड का सुपर स्पेशलिटी अस्पताल बनाने के प्रस्ताव को भी मंजूरी मिली है। इस परियोजना के लिए उत्तर प्रदेश सरकार 50 करोड़ रुपए का वित्त पोषण करेगी जोकि अगले 5 सालों तक 10 करोड़ रुपए प्रतिवर्ष के हिसाब से दी जाएगी।

मंत्रिपरिषद ने ऊर्जा विभाग के हडको से 1,000 करोड़ रुपए ऋण



लेने के प्रस्ताव पर मुहर लगा दी है। प्रदेश सरकार इस ऋण के लिए शासकीय गारंटी देगी। ओबरा में लग रहे 2 ताप बिजली घरों की लागत 11,705 करोड़ रुपए से बढ़ाकर 13,005 करोड़ रुपए किए जाने के प्रस्ताव को स्वीकृति दी गई है।

कानपुर देहात जिले के घाटमपुर में लग रही नेवेल्ली व उत्तर प्रदेश विद्युत उत्पादन निगम की ताप बिजली घर परियोजना की पुनरीक्षित लागत 19,406.12 करोड़ रुपए को भी मंत्रिपरिषद ने अनुमोदित कर दिया है। मंत्रिपरिषद के अन्य फैसलों की जानकारी देते हुए प्रदेश के जलशक्ति मंत्री स्वतंत्रदेव सिंह ने बताया कि बुदेलखंड की 26 परियोजनाओं को मंजूरी मिली है।

बुदेलखंड के ललितपुर, झांसी, महोबा और मिर्जापुर जिलों में जलशक्ति विभाग की परियोजनाओं को मंजूरी दी गई है। इसके साथ प्रदेश के

प्रयागराज में 2025 में होने जा रहे महाकुंभ की तैयारियों को लेकर भी कई प्रस्तावों को मंजूरी दी गई है। इस बार कुंभ मेला 3,200 हेक्टेयर क्षेत्रफल की जगह 4,000 हेक्टेयर में लगेगा।

साथ ही संगम पर घाटों का दायरा भी बढ़ाया जाएगा। कुंभ मेले के आयोजन के लिए वन विभाग से लकड़ी लेने के लिए 236 करोड़ रुपए दिए जाने के प्रस्ताव पर मुहर लगी है। नोएडा में जेवर एयरपोर्ट बनाने के लिए ली गई किसानों की जमीन का मुआवजा देने के लिए धनराशि को मंजूरी दी गई है।

एक अन्य फैसले में प्रदेश में 2 निजी विश्वविद्यालय खोलने के प्रस्ताव को भी स्वीकृति मिली है। गाजियाबाद में एचआरआईटी यूनिवर्सिटी और बरेली में फ्यूचर यूनिवर्सिटी को मंजूरी दी गई है। तबादला सत्र 2024-25 के लिए नई नीति को मंत्रिपरिषद की मंजूरी मिल गई है।

# Contact Us

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