

रिज्ञ्याण तान्त्राज्ञ्याण अनुवादान

DEPARTMENT OF SCIENCE AND TECHNOLOGY

NITTE UNIVERSITY TECHNOLOGY ENABLING CENTRE



DST NU-TEC Chronicle | Feb to May 2025

<p>चावार्ता EMERGE – Beach Festival 2025 Nitte DU enters into MoU: St Aloysius DU Father Muller Charitable Institutions Plotnew Bio Innovations Pvt Ltd ICAR-CIFE TEC Celebrates: National Science Day 2025 World Intellectual Property Day 2025 National Technology Day 2025 Patents awarded</p>	01	<p>चिदेव्याण इकलभेवइहान One-Health lecture series- Dr M Suresh</p>	08
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EMERGE 2025

EMERGE 2025, a premier startup lifestyle festival, was held from January 31 to February 2, 2025, at Tannirbhavi Beach, as a part of the Mangaluru Beach Festival 2025. Organized by Section Infin-8, a venture studio based in Mangaluru, the event aimed to position the city on the map of the world by fostering innovation and entrepreneurship in a unique beachside setting. EMERGE 2025 served as a convergence for the traditional and digital economies, fostering collaboration and growth. The festival attracted startup founders from across India, particularly from Bengaluru. The serene backdrop of Tannirbhavi Beach provided an ideal environment for creative solutions to emerge, addressing challenges ranging from food security to space exploration. Daytime activities included surfing and sea-swimming coaching sessions, entertainment and promoting a healthy work-life balance. The evenings were dedicated to vibrant networking sessions, connecting startup founders with young startup-enthusiasts from schools & colleges across the state. Dr. Sapna Poti, Director, Strategic Alliance, Office of Principal Scientific Advisor, Government of India launched “Mission Utthan” during this event.

DST TEC, Nitte University actively participated in this event by setting up a stall that showcased available technologies like spray-dried almond milk powder, a blend of whey with different fruit flavours prepared using spray-drying technology and nutraceuticals from fish waste. Technologies like the automatic shoe storage device and delivery system, three-axis tool force measurement system, piezo-actuator inchworm drive and a novel design of micro XY stage for micro-milling machines from NMAM Institute of Technology, Nitte, Karkala were displayed at the stall. Poster illustrating insect-repellent formulation developed jointly by KSHEMA Central Research Laboratory (CRL) and the NGSMIPS was displayed. ARJUNA, an Educational Robotics kit and other robotic devices developed by the startup, Newrro Robotics, and supported by NMIT, Bengaluru were also showcased at the DST TEC stall as technologies for venture capitalists to invest for larger dissemination to educational institutions teaching Artificial Intelligence. The local business community and chambers of commerce actively participated, exploring how emerging technologies like AI can transform traditional operations. EMERGE 2025 not only highlighted the potential of Mangaluru as a startup destination but also demonstrated how innovation can be harmoniously integrated with community values and social responsibility. EMERGE 2025 provided a great platform for DST TEC to showcase the emerging technologies, and those in pipeline providing ample networking opportunities for participants to connect, collaborate, and forge partnerships, especially with potential investors. It also served to showcase the power of science and innovation to the general public who attended the exhibition.



Dr Iddya Karunasagar addressing the audience during the inauguration of the beach festival event.



Dr Sapna Poti Director, Strategic Alliances, PSA office along with Mr Aravind CEO Section Infin-8, visits DST TEC stall for discussing RSVC project Under Manthan program



Visitors and investors at the DST TEC stall to understand the displayed technologies

MoU between Nitte (Deemed to be University) and St Aloysius (Deemed to be University), Father Muller Charitable Institutions



St Aloysius Deemed to be University is a recently designated premier university offering several courses across disciplines with innovative higher education methodology and aiming for research standing commensurate with global standards. An MoU was signed between Nitte DU and St Aloysius DU with the objective to foster collaboration in areas with complementary expertise for translational research and technology development. The MoU is expected to network multidisciplinary fields, and to provide a conducive environment for researchers, entrepreneurs, and startups to seek solutions on real-time basis. It is also expected to facilitate the emergence of a diverse research culture and reduce redundancy. Through the MoU, both universities expect to be involved in manpower training, student exchange programs, faculty exchange, collaborative research, conduct of webinars, joint publications, conferences, and workshops.

The MoU was exchanged between Dr M S Moodithaya, Vice Chancellor, Nitte DU and Dr Roshan Frederick DSouza, Chair, International and domestic Relations, representing Dr Praveen Martis, The Vice- Chancellor, St Aloysius DU in the presence of Dr Iddya Karunasagar, Advisor, Research and Patent, Dr Indrani Karunasagar, Director Projects and DST TEC, Dr Daniella Anne Chyne, Assistant Professor, St Aloysius DU, Mr. Chethan Chakrabarthy, Legal officer, Nitte DU. DST TEC facilitated the MoU exchange.

Father Muller Charitable Institution is one of the oldest renowned healthcare and educational organization dedicated to serving the community with compassion and excellence. Nitte DU and Father Muller Research Centre, Father Muller Charitable Institution, signed an MoU to enhance collaboration and cooperation towards knowledge enhancement. DST TEC enabled this collaboration, which would pave the way for the development of the scientific relationship between Nitte DU and Father Muller Charitable Institution by fostering joint projects, publications, patents and translational research towards technology development. This collaboration seeks to provide a conducive environment for researchers, practitioners and allied health professionals to network towards problem solving in the respective sectors through inter-institutional cooperation. It is also expected to bridge the gap between academia and industry and move from conceptualization down to commercialization.

The MoU exchange took place during the Programme Advisory Committee meeting on March 14, 2025 between Dr M S Moodithaya, Vice Chancellor, Nitte DU and Dr Ramesh Bhat, Research Head, Fr Muller Charitable Institutions in the presence of Dr Iddya Karunasagar, Dr Indrani Karunasagar, TEC staff and all invitees to the PAG.



DST NUTEC enables clinical trial of the device 'Birthfixia' developed by Plotnew Bio Innovations Pvt Ltd at K S Hegde Medical Academy



DST NUTEC has enabled the clinical trial of the device 'Birthfixia' developed by Plotnew Bio Innovations by Department of Pediatrics, KSHEMA, Nitte DU. An MoU on this partnership was signed on 28 March, 2025 by Dr Harsha Halahalli, Registrar, Nitte DU and Mr Avinash Chandrashekaraiah, CEO, Plotnew Bio Innovations. Dr Iddya Karunasagar, Advisor Research & Patents, explained about the innovation and the recognition it received from Biotechnology Research Assistance Council (BIRAC) in the form of Biotechnology Ignition Grant (BIG) and the role of KSHEMA Department of Pediatrics in supporting the project presentation to BIRAC. Dr M. S. Moodithaya, Vice Chancellor, Nitte DU assured all support to KSHEMA doctors and to Plotnew Bio Innovations in completing the study and taking the technology to the market. Dr Sandeep Rai, Dean, KSHEMA appreciated the innovative solution developed by Plotnew Bio Innovations to predict asphyxia in the new-born and predicted, that if successful, the point - of - care test would not only be helpful in rural areas but could replace the Arterial Blood Gas Analyser even in large hospitals. Dr Seema Pavaman, Head, Department of Pediatrics and Dr Swathi Shenoy, Neonatologist, KSHEMA provided statistics on the number of childbirths in KSHEMA hospital every month and the timelines that would be required to carry out the clinical trial. DST NUTEC staff were present on the occasion.



Discussion with Dr Seema Pavanan and Dr Swathi Shenoy, Pediatric intensivists, on clinical validation of Birthfixia diagnostic tool to predict asphyxia in newborns in resource limited setting to be conducted at Justice K S Hegde Hospital, Mangaluru.

MoU between Nitte DU and ICAR- Central Institute of Fisheries Education (CIFE)



ICAR Central Institute of Fisheries Education is a Deemed University that has emerged as a Center of Excellence for higher education in fisheries and allied disciplines. Nitte DU and ICAR-CIFE signed an MoU on February 28, 2025, agreeing to cooperate in skill-based training, education and to develop collaborative projects in basic and applied research. DST TEC enabled this collaboration, which would pave the way for developing the scientific relationship between Nitte DU and ICAR-CIFE to foster translational research and communication for advances in multidisciplinary fields. Researchers, industry professionals, and practitioners can all network and look for solutions in real-time through this cooperation. The activities that are planned for this partnership include training personnel, assistance and guidance in developing projects for funding, conducting joint projects, giving lectures and sharing product development, hosting webinars, joint publications, conferences, and symposia, exchanging technical information, and encouraging extension activities to help rural development especially in the field of fisheries.

The MoU exchange was held at Nitte University between Dr Harsha Halahalli, Registrar, Nitte DU and Dr Ravishankar C.N., Vice-Chancellor, ICAR-CIFE. Dr Iddya Karunasagar, Advisor, Research and Patent, Dr Indrani Karunasagar, Director Projects and DST TEC, Dr Praveen Kumar Shetty, Director Research & Development, Dr Anirban Chakraborty, Director NUCSER, Mr Nithya Chethan Chakravarthy, Legal Officer, Nitte DU and DST TEC staff were present during the exchange ceremony.

Prof. Dr M.S. Moodithaya, Vice-Chancellor, Nitte DU, could not be present due to being away on official duty. He complimented the steps taken towards collaborating with central universities and carrying out research projects of societal value.

Felicitation ceremony and National Science Day Awards

DST NUTEC, in association with Nitte University Centre for Science Education and Research, The Research Directorate, Nitte DU, Institutional Innovation Council, Nitte DU felicitated Dr C. N. Ravishankar, Director & Vice Chancellor of the ICAR-Central Institute of Fisheries Education, GoI, Mumbai on the occasion of Science Day Celebration on 28 Feb, 2025 for his outstanding achievements in fisheries education and research. During the occasion, the chief guest delivered a lecture on "Fisheries Higher Education in Viksit Bharath".

He highlighted the developments in fisheries sector and manpower requirements in the country to support the required developments as India is marching towards becoming Viksit Bharath in 2047. He underlined the need for more investment in fisheries education and research and highlighted that the return on such investments is several folds higher.

An 'Award Ceremony for Student Achievers in Science' on National Science Day, 28 Feb 2025 at 2 PM was also held at NUCSER.



Awards to student winners of various competitions held on account of National Science Day NUCSER were distributed by the chief guest Dr Ravishankar, and Dr Anirban Chakraborty, Director NUCSER. Prof. Dr Indrani Karunasagar welcomed the gathering, Prof. Dr Iddya Karunasagar introduced the chief guest to the audience, and Dr Sudarshan Kini, Senior Scientist, NUCSER, proposed the vote of thanks. Around 150 participants attended this event. The chief guest Dr Ravishankar, complimented the awardees of different competitions and urged them to take their innovation to higher levels.

Celebration of World Intellectual Property Day



On the occasion of World Intellectual Property Day, celebrated on 26 April 2025, DST NU-TEC, along with the Institution Innovation Council (IIC) organized an awareness session for students of health science and allied health which was followed by a quiz contest. Students from the K S Hegde Medical Academy (KHEMA), Nitte Institute of Allied Health Sciences (NIAHS) and A B Shetty Memorial Institute of Dental Sciences (ABSMIDS) participated enthusiastically in the event. Dr Indrani Karunasagar, Director DST TEC welcomed the gathering and highlighted the significance of World Intellectual Property Day. Dr Iddya Karunasagar, Advisor Research and Patent delivered an insightful presentation covering information that included introduction to Patents and IPR, the Convention leading to establishment of WIPO (World Intellectual Property Organization), the Patent Cooperation Treaty, Patent offices in India and their functioning, recent country-wise patent filing statistics, and the major users of the PCT system. He also detailed the different sections of Indian Patent Act defining what is not patentable, the steps involved in patenting, and the need to file patent application before publishing any invention. He also illustrated various forms of intellectual property rights, including Patents, Copyrights, Industrial Designs, Trademarks, Geographical Indicators, and Trade Secrets.

The session was followed by a quiz contest, conducted through the Mentimeter digital platform by Dr Prithvisagar K. S., Project Associate, DST TEC, and Mr Prajwal Jupiter Lobo, Assistant Professor, Department of Public Health. 200 students actively participated in the quiz using the scan code through their devices. Cash prizes were awarded to the 1st, 2nd and 3rd winners. Consolation prizes were given to 10 participants who obtained high scores. President of the day, Dr Sandeep Rai, Dean KHEMA commended the DST TEC for this educational event keeping in line with the Nation's march towards innovation. Dr Jayaprakash Shetty, Dean NIAHS, Chief Guest of the day, emphasized that such initiatives are instrumental in enhancing knowledge and awareness about intellectual property rights. The President and the Chief guest gave away the prizes in the presence of other dignitaries. Dr Nesara Kadanakuppe, Coordinator IIC proposed the vote of thanks. In all, over 250 participants at the event benefited from the presentation that enlightened them with knowledge on Patents and IPR.

Winners of the quiz contest

S. No	Name of the student	Institute	S. No	Name of the student	Institute
1	Aadithya Suresh- 1 st Prize	KHEMA	8	Kudva Ashutosh Ashok	KHEMA
2	Gareena Kapoor- 2 nd Prize	KHEMA	9	Chetan Jain	KHEMA
3	Aaron Jojoy- 3 rd Prize	KHEMA	10	Arul Nayagi Raj	ABSMIDS
4	Swastika Prashanth	KHEMA	11	Pravalika V Kustagi	KHEMA
5	Sarengi Radhika	KHEMA	12	Tanvi Shetty	KHEMA
6	Abhinav Prasad	KHEMA	13	Asmita Krishna	KHEMA
7	Dr Afiya Abdul Azeez	NIAHS			

Celebration of National Technology Day 2025



DST TEC, in association with the Institutions Innovation Council, Nitte DU, Nitte- GoK-COE Aquamarin, and Section Infin-8, jointly organized a highly relevant panel discussion on 13 May 2025 to commemorate National Technology Day. The topic for the discussion was ‘Challenges faced by Startups in Technology Commercialization’ and included individuals who have a startup. The theme for National Technology Day 2025 was “YANTRA - Yugantar for Advancing New Technology, Research & Acceleration”. The event took place at the University Auditorium at Paneer Campus. Prof. Indrani Karunasagar welcomed the gathering and detailed the significance of National Technology Day. This day commemorates the successful Pokhran nuclear test that put India on the map of technologically advanced countries, achieved on May 11, 1998 with Operation Shakti. This day serves as a testament to India’s technological achievements and determination to harness science and technology for national development.

Prof. Iddya Karunasagar introduced the panelists to the gathering and moderated the panel discussion. The panelists included startups and companies from Mangalore: Mr Sumanth Shenoy, M/s Stelna Designs, Mr Manjunath Bangera, M/s Sitaara, Dr Biju Thomas, Dentronics, ABSMIDS, and Mr Karthik Attavar, Section Infin-8.

The panelists shared an in-depth knowledge of their journey in establishing startups, focusing on the challenges encountered from the inception stage to the present. They focused on the commercialization challenges of startups, like funding, compliance with regulatory and technical requirements, and scaling of the startup. While initial funding could come from Startup India, National Initiative for Developing and Harnessing Innovations (NIDHI), NIDHI PRAYAS (Promoting and Accelerating Young and Aspiring Innovators and Startups), BIRAC and other sources. It was pointed out that the aspirants of grants should know where to look for grants and make the proposal carefully to fit the requirements of the call for grants. The panelists urged prospective founders to never give up on their business goals, no matter how terrifying the path may appear, and to see setbacks as teaching moments. Scaling up can be at different levels and DST TEC is providing support to Startups to move up the Technology Readiness Level. The participants also sought clarifications on various points discussed.

About 150 participants, including staff and students of Nitte University Centre for Science Education and Research, Nitte Institute of Communication, and Nitte Usha Institute of Nursing Sciences, attended this interactive panel discussion.

DST NU-TEC support to patent application and granting (Feb to May 2025)

Support provided for hearing				
Application number	Title	Institution	Support provided	Current status
202041055583	Periodontal temperature probe	ABSMIDS and NMAMIT	Responding to hearing and submission of written response	Granted
Support provided for publication and complete specification				
202441097384	Novel primers and guide RNA sequence for the detection of <i>Enterocytozoon hepatopenaei</i> (EHP) by Recombinase Polymerase amplification (RPA) -CRISPR-Cas12a based fluorescent assay	NUCSER	Submission of complete specifications	Published, under examination
202541044162	Fluorescence-based nanoprobe for selective detection and quantification of methicillin-resistant <i>Staphylococcus aureus</i>	NUCSER	Submission of complete specifications	Published, under examination
202541044162	Formulation of fucoidan based nanoparticles of lutein and demonstration of its effectiveness on breast cancer cell line	NGSMIPS	Provisional specifications	Filed Provisional

Grant of patent facilitated by DST TEC



An innovative probe and device developed for measuring subgingival temperature during inflammatory conditions in the oral cavity was awarded a patent. The inventors of this device are Dr Biju Thomas and Dr Karishma Ashok from A B Shetty Memorial Institute of Dental Sciences (ABSMIDS), Nitte DU, and Prof. Shashikantha Karinka, Professor from NMAMIT, Nitte DU. This device would help dentists to accurately identify areas around the teeth that are infected or having inflammation. This patent application and the process was supported by DST Technology Enabling Center, Nitte DU. DST TEC also enabled the inventors to become a Startup company 'Dentronics' that is incubating at Atal Incubation Center of Nitte University.

Distinguished lecture under One Health lecture series



DST NUTEC organized a distinguished lecture by Dr M Suresh, Associate Dean for Research and Graduate Education, John Butler professor of comparative and mucosal immunology from the University of Wisconsin School of Veterinary Medicine, USA, in collaboration with the Nitte University Centre for Science Education and Research and the Directorate of Research, Nitte DU. Dr Suresh spoke on “Tenets of T Cell Immunity to Respiratory Viral Pathogens”. The distinguished lecture was held on 27 Feb 2025 at the seminar hall at NUCSER at 11.30 am. This event was organized as a part of the ‘One Health Lecture series’. Dr Anirban Chakraborty, Director NUCSER, delivered the welcome address and Dr Iddya Karunasagar, Advisor (Research & Patents), Nitte DU, introduced the speaker to the gathering.

In his lecture, the speaker provided insights into vaccine-induced multifaceted mucosal T-cell immunity with implications for the development of vaccines against respiratory pathogens, including influenza virus and SARS-CoV-2, using a combination adjuvant strategy to elicit CD8 and CD4 T-cell responses. The relation between immune response and protection against infection and disease was also explained. Most often, immune response is measured in terms of antibody titers, but the need to understand T-cell response that is important in overcoming intracellular pathogens like viruses was highlighted. The major focus of the lecture was on providing fundamental insights into T-cell-based vaccine-induced protective immunity in the case of respiratory viruses. About 150 participants, including the staff and students of NUCSER, attended the invited lecture.

TEC Conclave 2025

DST organized a one-day TEC-Conclave at the Anna University Chennai on 27-28 May 2025. The Coordinators from phase 1 and phase 2 TECs attended the meeting and presented their activities. Coordinators of TECs sanctioned during phase 1 and 2 made presentations on significant achievements, challenges faced during ecosystem building, suggestions/way forward for TECs etc. Dr Indrani Karunasagar and Dr Iddya Karunasagar represented TEC, Nitte (DU) presented a consolidated report on the activities of the center (for the period 2021-25). TEC officials evaluated the activities and suggested the aspects to improve upon.



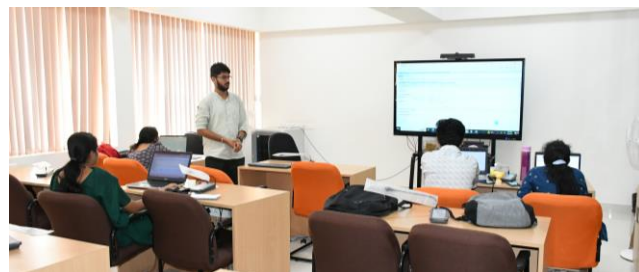


Discussion with Office of Principal Scientific Advisor (PSA) Government of India

20 Feb 2025: DST TEC in collaboration with Section Infin-8 had a discussion with Dr Sapna Poti, Director, Strategic Alliance at the Office of Principal Scientific Advisor, Government of India regarding the participation of Nitte as Implementation Partner in Rural Technology Action Group (RuTAG) Smart Village Center (RSVC). The intention of RSVCs is to make a baseline study of the technology needs of the villages, identify technologies that can be taken to these villages to transform them into smart villages. This program aligns well with the DST Technology Enabling Center activities, since DST TEC has the mandate to enabling technology development and transfer technologies to the villages. The funding for RSVCs is to be mobilized through donors.



29 May 2025: Discussion with undergraduate dental students regarding innovative ideas for evaluation of patentability.



27 March 2025: Dr Prithvisagar KS, Project Associate DST TEC conducted two days of hands on Bioinformatics training on Bacterial Whole Genome Sequencing and Metagenomics analysis to scientists from CMFRI, Cochin.



12 May 2025: Discussion with Sr Dr Venissa A C, Principal, Sr Dr Roopa A C, Vice Principal, Sr Dr Vinora A C, Coordinator, PG Studies, Dr Vishala, B.K., Chief Librarian, St Agnes Autonomous College, and faculty members on how DST TEC could support academic innovation, IPR and technology development in areas where St Agnes College has expertise. Possibilities of connecting with other institutions and industries in the DST TEC network were also discussed.



21 May 2025: Discussion with Mr. Reji P John, faculty from St Aloysius DU and Mr Praveen, N. faculty from Nitte Institute of Professional Education on patentability of technology for mapping activities with Sustainable Development Goals (SDGs).



04 April 2025: Discussion with Dr Giridhar, Associate Professor of Pulmonology, K S Hegde Medical Academy, regarding technology development support from BIRAC under Academic Innovation Research.

Supporting Karnataka Science and Technology Academy



Supporting Karnataka Science and Technology Academy (KSTA) to organize National Conference on “Antimicrobial Resistance: Strategies for Prevention and Alternatives” at KSTA auditorium, Bangalore, on May 14-16, 2025. The National Conference was inaugurated by the Hon’ble Minister for Science and Technology, Government of Karnataka, Shri N.S.

Bosaraju in the presence of Dr Raghavendra Bhatta, Deputy Director General, Indian Council of Agricultural Research and Dr Iddya Karunasagar. The Conference was addressed by delegates from WHO and leaders from various national organisations. Dr Indrani Karunasagar delivered a keynote lecture on “Phage therapy for mitigation of antimicrobial resistance” and Dr Iddya Karunasagar delivered a lead lecture on “Capacity building, international networks in antimicrobial resistance and mitigation”. The conference was attended by over 100 delegates from different academic and research institutions in Karnataka.



14th Asian Fisheries and Aquaculture Forum (14FAF)

Greening the Blue Growth in Asia Pacific

February 12-15, 2025 New Delhi, India

Dr Iddya Karunasagar delivered a Lead Lecture on “Biosecurity and Aquaculture” at the Symposium on “Aquatic Animal Diseases: Emerging challenges and preparedness” on Feb 13, 2025. This Symposium was part of the 14th Aquaculture and Fisheries Forum organized by the Asian Fisheries Society and the Indian Council of Agricultural Research at the National Agricultural Science Complex, Delhi, held on February 12-15, 2025.

International Scientific Advisory Board meeting of Saudi Food and Drug Authority



Dr Iddya Karunasagar, as a Member of the International Scientific Advisory Board (ISAB) of the Saudi Food and Drug Authority (SFDA), attended the second meeting of the Board at Riyadh on Feb 19-20, 2025. Dr Karunasagar provided advice on issues related to microbiological risk assessment for various food commodities and the measures that need to be adopted following any food safety emergencies. Dr Karunasagar had several one-to-one meetings with SFDA officers to address the queries they had on microbiological issues.



Dr Iddya Karunasagar delivered a lecture on IPR and Technology Transfer for MSMEs at the IPR awareness programme organized by the Branch MSME Development and Facilitation Office, Industrial Estate, Yeyyadi, Mangalore, on 12th March 2025. Dr Karunasagar explained about the support DST Technology Enabling Centers can offer to MSMEs in IPR, acquiring need-based technologies as well as developing technologies in collaboration with DST TEC partners.



Dr Iddya Karunasagar delivered an invited lecture on “Regulations related to Microbiomes and Probiotics” at Microbiome Conclave and Ideathon 2025 organised by the Center for Excellence in Microbiome and Kerala Startup Mission in Cochin on March 5, 2025. The conclave was attended by several Startups and Academic Institutions from Kerala and other States. The Startups evinced keen interest in understanding the regulatory landscape for application of microbiomes in various sectors.

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