विज्ञान एवं प्रौद्योगिकी विभाग
DEPARTMENT OF
SCIENCE & TECHNOLOGY

GITAM
DEEMED TO BE UNIVERSITY
BENGALURU • HYDERABAD • VISAKHAPATNAM

G-TEC
DST - GITAM TECHNOLOGY ENABLING CENTRE

Volume 6 July 2026

NEWS LETTER

Funded by the
Department of Science & Technology, TDT Division

GITAM – Technology Enabling Centre
GITAM (Deemed to be University)













Dear Readers,

It is with great pleasure that I present the sixth edition of the G-TEC Newsletter, highlighting our continued commitment to fostering innovation, collaboration, and technological advancement. Over the past year, G-TEC has further strengthened its role as a vital bridge between academia and industry, with a renewed focus on empowering MSMEs, advancing agri-innovations, and nurturing entrepreneurship.

A key milestone this edition is G-TEC's active involvement in the Vendor Development Programme under the RAMP (Raising and Accelerating MSME Performance) scheme, aimed at enhancing the competitiveness, supplier readiness, and market access of MSMEs. Through this engagement, G-TEC continues to facilitate meaningful industry-academia collaboration, connecting MSMEs with research expertise, technology solutions, and capacity-building opportunities.

This edition also showcases G-TEC's growing emphasis on agri-innovations and entrepreneurship—supporting technology-driven solutions for farmers, agri-enterprises, and rural value chains. From technology demonstrations and field deployments to entrepreneurship development and knowledge-sharing platforms, our initiatives continue to build a thriving ecosystem that nurtures innovation and accelerates technology commercialization.

I sincerely thank all our stakeholders for their continued trust, encouragement, and valuable support. Together, we remain committed to advancing innovation that contributes to sustainable development and inclusive growth.

Best Regards,
Prof. Raja P Pappu
Coordinator
DST GITAM Technology Enabling Center

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TECHNOLOGIES MINED

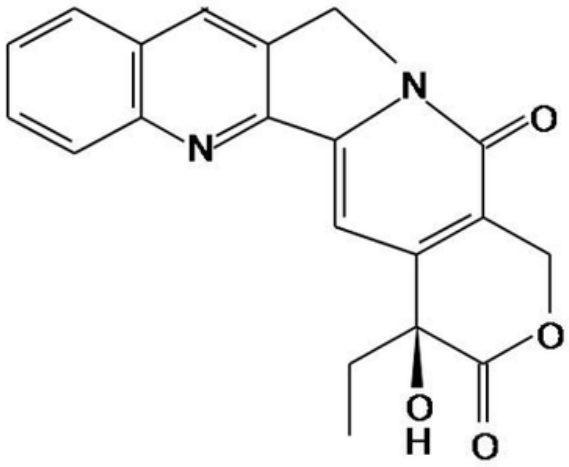
1 A Rapid, Continuous and Renewable Method for Multiplication Of Ophiorrhiza rugosa as a Source of Anti-Cancer Drug Camptothecin



Medicinal plants form an important source for a wide variety of natural products used in the treatment of a various types of diseases like cancer, hypertension, malaria, AIDS etc. These drugs possess a complex organic structure with several chiral centres and are difficult to synthesise in the laboratory. On the contrary, plants accumulate these products with ease under natural conditions. This in turn has resulted in the exploitation of several medicinal plants for the production and export of life saving drugs. .

TRL Level: 09

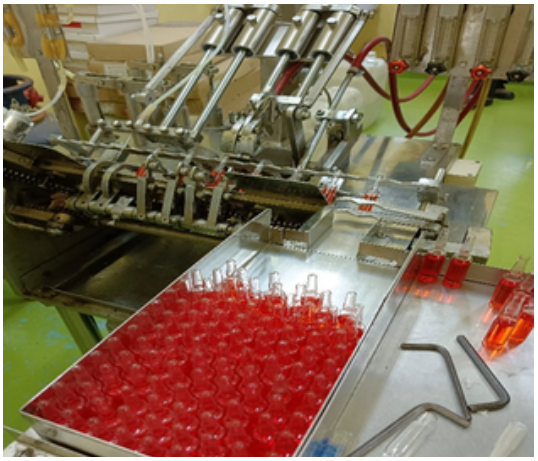
In the case of the anticancer drug camptothecin, commercial production is from Camptotheca acuminata & Nothapodytes foetida. Many trees are uprooted from the natural flora and used for camptothecin production. BARC has developed a rapid, continuous and renewable method for multiplication of Ophiorrhiza rugosa as a sustainable source of anti-cancer drug camptothecin.



Applications :

- Agriculture sector.
- Biotechnology and pharmaceutical companies.
- Plant nurseries.

2 Low dose dosimeter (ANUDOSE) for food irradiation application





TRL Level: 09

Radiation processing of food with its unique advantages is one of the important approaches to mitigate the postharvest food losses. It is also increasingly gaining market access for agricultural and horticultural produce to meet sanitary and phytosanitary requirements of international trade. Accurate absorbed dose measurements are essential in all irradiation facilities to ensure the desired objectives. However, no cost-effective dosimeters in the dose range of 25 to 1000 Gy are available in India. BARC has developed dye-based reliable, user-friendly and cost-effective dosimeter in the low dose range (25 to 1000 Gy) to meet the commercial requirement for food irradiation dosimetry.

Applications:

- Dosimeter can be used in commercial scale to measure food irradiation dose in the range of 25 – 1000 Gy for various applications such as sprout inhibition, insect disinfestations and quarantine treatments.

3 Digital Pocket Radiation Dosemeter (DIGIDOSE)



Model – I



Model - II

The Digital Pocket Radiation Dosemeter, DIGIDOSE is a semiconductor detector based, low cost, digital radiation dosemeter. It provides continuous digital readout of X & Gamma radiation dose over a wide range (1microSv to 99999 microSv). It works on a pair of coin type Lithium battery cells with the battery life exceeding three months if used for 8 hours a day in a 10 microSv/hr radiation field. The dosemeter is available in two models, Model I & II, which differ in the size & type of LCD display used.

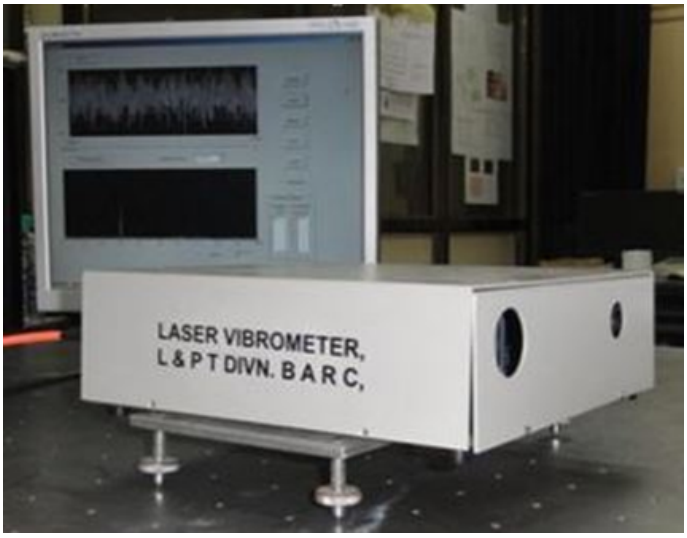
TRL Level: 09

In another very low-cost variation (RADCLICK), the LCD display is dispensed with and a beep tone is produced for every 0.05 microSv of accumulated dose

Applications:

- Personnel monitoring of radiation workers in Nuclear power stations, Isotope laboratories, Industrial radiography installations, diagnostic & therapeutic radiology centres, etc.

4 Laser Vibrometer (Kampan)



This high-resolution, non-contact optical triangulation-based vibration measuring instrument (Kampan) for non-contact vibration measurement can measure vibration from a stand-off distance of 200 mm in the frequency range of 0.1 Hz to 1 kHz with an accuracy of 1% of measured frequency value and amplitude range of ±2 µm to ± 5 mm with a resolution of 1 micron.

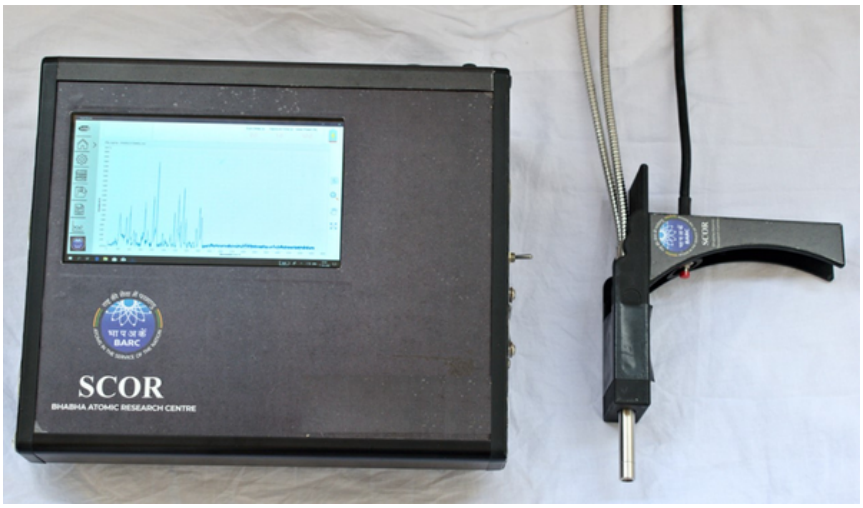
TRL Level: 09

In contact dependent techniques, the sensor e.g. accelerometer, is kept in touch with the vibrating object which may load the object and cause error in measurements. The technology offered does not need physical contact with the object thus does not affect the frequency of vibration.

Applications:

- For vibration measurement of motors, pumps, machines in industry
- For structural vibration measurement
- Measurement of Vibration of laser Dye cell
- Measurement of Vibration in an optical table

5 Portable Raman Spectroscopy System for Oral Cancer Detection



TRL Level: ·09

Oral cancer is a major health issue in India, largely due to the widespread use of tobacco products. Screening high-risk populations for oral cancer is crucial for early detection and improved survival rates. The current gold standard for diagnosis and identifying potential malignancy is histopathological analysis after surgical excision. To minimize uncertainties in the diagnostic gap between clinical examination and histopathological analysis, the development of non-invasive methods capable of classifying oral cancer tissue as malignant or non-malignant in real-time, with a low misclassification rate, is highly desirable. Spectroscopy, known for detecting changes in tissue characteristics indicative of malignant transformation, offers a promising solution. In light of this, BARC has indigenously developed an AI-based, portable, handheld, non-invasive spectroscopy system with a custom-designed pistol-grip spectroscopy probe, known as SCOR, to facilitate large-scale patient screening for early cancer detection.

Applications:

- Portable spectroscopy system is used as a non-invasive technique in screening for the diagnosis of oral cancer.

6 ChemoMechanical Magneto Rheological Finishing (CMMRF) Machine





TRL Level: 09

BARC has developed a novel nanofinishing system for achieving surface finish in order of few angstroms to few nanometers in various engineering materials. It is named as 'ChemoMechanical Magneto Rheological Finishing (CMMRF) Machine'. It is a hybrid finishing technology of chemomechanical polishing (CMP) and magneto-rheological finishing (MRF) technologies.
CMMRF has polishing capacity of typically 0.5nm surface finish (Ra) in 50mm surface area of silicon material. Parties must have sound financial background, experience in precision machining & assembly, fluid circulatory system and integrated assembly facility.

Applications:

- Optical lenses/ Mirrors for General optics, LASER Optics, Soft X-ray Optics, Hard X-ray Optics
- Micro-fluidics, Micro-tools, platform for Micro-fabrication, and dies & molds
- MEMS & NEMS fabrication, IC chip & microelectronics fabrication, LINAC RF Cavity, Hip joints, Knee joints, Stents, etc.

1 DST G-TEC at Vendor Development Programme under the RAMP Scheme, Vizianagaram – Andhra Pradesh



DST GITAM Technology Enabling Centre (G-TEC) participated in the two-day Vendor Development Programme organized by Laghu Udyog Bharati and the Central Institute of Tool Design (CITD) in Vizianagaram on 17–18 April 2026. G-TEC delivered a session highlighting its role in bridging advanced research and practical technology solutions for MSMEs, industries, and rural entrepreneurs, including its association with BARC and initiatives supporting technology transfer and adoption.

The programme brought together MSMEs, industry representatives, technology experts, and institutional stakeholders. Sessions covered MSME and government schemes, agricultural opportunities, food-processing technologies, banking and financing schemes, aerospace-related business opportunities, and startup development.





The programme also provided an opportunity to interact with industry stakeholders and explore potential vendor development, technology adoption, and collaboration opportunities. G-TEC's participation reinforced its commitment to enabling technology-driven and sustainable growth among MSMEs and emerging enterprises.

2 DST G-TEC at PoPCON 2026 - Strengthening Industry–Academia Collaboration



PoPCoN 2026, organized by the GITAM School of Business on June 26–27, 2026, at GITAM University, Visakhapatnam, brought together Professors of Practice, academicians, industry professionals, and institutional leaders to explore the evolving role of practice-based education. The conference focused on strengthening the connection between industry experience and academic learning.



The conference provided a platform to discuss the integration of practitioner insights with academic rigour, transitioning from industry to academia, developing industry-based case studies, and strengthening the role of Professors of Practice in higher education.



Through expert talks, panel discussions, hands-on workshops, and networking interactions, participants exchanged perspectives on making education more relevant, experiential, and aligned with real-world industry requirements. The programme also encouraged meaningful engagement and knowledge sharing between academia and industry.

The successful organization of PoPCoN 2026 reinforced the importance of connecting industry experience with academic learning. The conference served as a valuable platform for exchanging perspectives, expanding professional networks, and fostering meaningful industry-academia collaboration towards more practice-oriented and impactful education.

3 DST G-TEC at DPIIT Startup India – TEJAS

DST G-TEC participated in the DPIIT Startup India – TEJAS Programme held on 24 July 2026 in Parvathipuram Manyam, Andhra Pradesh. The programme brought together stakeholders from the entrepreneurship and innovation ecosystem with a focus on promoting entrepreneurship, innovation, and opportunities for local communities.





The programme featured an address by Shri N. Prabhakara Reddy, IAS, District Collector and District Magistrate, Parvathipuram Manyam, who highlighted the vision of “One Family, One Entrepreneur” as an approach to encouraging entrepreneurship, innovation, and employment generation at the grassroots level.

As part of the programme, DST G-TEC was provided an opportunity to present its activities and initiatives supporting innovation, entrepreneurship, and technology enablement. The interaction also provided a platform to connect with entrepreneurs, ecosystem stakeholders, and institutions working towards strengthening the regional innovation ecosystem.



The programme was organized with the support of DPIIT Startup India, Ratan Tata Innovation Hub, Andhra Pradesh Innovation Society, and the District Industries Centre, Parvathipuram Manyam. DST G-TEC’s participation reaffirmed its commitment to promoting technology-driven entrepreneurship, innovation, and inclusive economic development in Andhra Pradesh.

4 DST G-TEC at the CII IWNAP Leadership Conclave



DST GITAM Technology Enabling Centre (G-TEC) participated in the CII IWNAP Leadership Conclave, which brought together women entrepreneurs, industry leaders, and ecosystem stakeholders to share experiences, perspectives, and insights on leadership, innovation, and entrepreneurship. The conclave provided an opportunity to interact with women entrepreneurs who have transformed ideas into impactful ventures across areas including handcrafted products, eco-friendly innovations, and healthy food businesses. Their journeys highlighted how innovation can extend beyond advanced technology and can also emerge from identifying everyday challenges and developing purposeful solutions.



The discussions offered valuable insights on empathetic leadership, human-centred technology, skill development, purposeful growth, and action-oriented leadership. A key takeaway was the importance of combining emotional intelligence with clear thinking, building strong capabilities, and creating meaningful value through collaboration and innovation.

G-TEC's participation in the conclave provided an enriching opportunity to connect with entrepreneurs and gain perspectives on inclusive leadership and innovation. The engagement reinforced G-TEC's commitment to supporting a more inclusive, innovative, and collaborative entrepreneurship ecosystem.

5 DST G-TEC at AgriPreneurs Monthly Meet – Strengthening Agri-Innovation and Entrepreneurship



DST GITAM Technology Enabling Centre (G-TEC) participated in the AgriPreneurs Monthly Meet, a collaborative platform bringing together agri-innovators, startups, entrepreneurs, technologists, and domain experts to explore practical solutions for the evolving agricultural sector.

The sessions featured valuable insights on Super Napier Biomass and sustainable energy opportunities, Energized Water for improved agricultural productivity, agrivoltaics, PM KUSUM 2.0, and soilless precision farming. Startup pitches further showcased technology-driven solutions in agricultural diagnostics, organic produce, and sustainable farming practices.

The meet also highlighted the progress of emerging local initiatives, including Yerram Foods, Moola, Vyavasaya Vachakam, and Bio-Weedmat, working across areas such as value-added agricultural products, transparency in organic produce, farmer knowledge dissemination, and biodegradable farm solutions. The discussions emphasized the importance of converting grassroots ideas into scalable and market-oriented ventures.

Through its participation, DST G-TEC reaffirmed its commitment to promoting technology transfer, supporting agri-startups, strengthening industry–academia collaboration, and enabling sustainable entrepreneurship. The AgriPreneurs platform continues to create meaningful connections and opportunities towards the shared goal of building five investable agri-startups by December 2026.

6 DST G-TEC Quantumizers Meetup 1 – Exploring the Future of Quantum Technologies



DST GITAM Technology Enabling Centre (G-TEC) was pleased to be associated with Quantumizers Meetup 1, an initiative bringing together academia, industry, innovators, and technology enthusiasts to explore the emerging landscape of quantum technologies and their potential applications. The meetup featured insightful sessions on quantum science, research, and emerging infrastructure. Prof. B. V. R. Tata, Distinguished Professor and Raja Ramanna Fellow at GITAM, shared insights into quantum fundamentals and GITAM's upcoming Quantum Lab, while Prof. Valli Kumari of Andhra University highlighted the work of the University's Centre of Excellence and developments under the National Quantum Mission.



The discussions also focused on the commercial potential of quantum technologies, including post-quantum cryptography and emerging industry use cases. A hands-on demonstration using IBM Composer by Mr. Siddhu Chelluru, Founder & CEO, CRYPTOPIX PRIVATE LIMITED, provided participants with a practical understanding of quantum concepts and applications.

Through its participation, DST G-TEC reaffirmed its commitment to fostering emerging technology ecosystems, strengthening academia-industry linkages, and supporting innovation-led opportunities. The successful launch of Quantumizers marks a positive step towards building a vibrant quantum technology community in the region.



INDUSTRY VISITS

1 Industry Interaction with Acharya N.G. Ranga Agricultural University, Anakapalle



DST GITAM Technology Enabling Centre (G-TEC) conducted an industry interaction visit to the Regional Agricultural Research Station (RARS), Anakapalle, affiliated with Acharya N.G. Ranga Agricultural University, to explore technology opportunities in agricultural processing and value addition.

During the visit, Dr. P. V. K. Jagannadha Rao, Principal Scientist, showcased several innovative technologies, including the Clean Combustion Biomass Gasifier System for solid and granular jaggery production, modern jaggery processing systems, value-added jaggery and millet products, and sugarcane juice processing technologies.

The interaction provided valuable insights into the potential for translating agricultural research into practical, sustainable, and market-oriented solutions for farmers, rural entrepreneurs, and MSMEs. The demonstrated technologies have significant potential for improving processing efficiency, value addition, and resource utilization.



Through this engagement, DST G-TEC strengthened its efforts to facilitate technology transfer and build linkages between research institutions, industry, farmers, and entrepreneurs, supporting the adoption and scale-up of innovative agri-technologies.

2 Industry Visit to Badangi and Bobbili – Strengthening Technology Linkages for Local Enterprises



DST GITAM Technology Enabling Centre (G-TEC) conducted an industry and field visit to Badangi and Bobbili to engage with local enterprises, understand their technology needs, and identify opportunities for technology transfer and innovation support.

At Badangi, the G-TEC team interacted with stakeholders from the jaggery industry to understand their operational challenges, business bottlenecks, and technology requirements. The discussions provided valuable insights into opportunities for improving processing efficiency, product quality, productivity, and value addition.

As part of the industry visit, the team also visited Bobbili and interacted with a women entrepreneur group to explore suitable technology solutions for strengthening their enterprises. The discussions focused on identifying practical, affordable, and relevant technologies that can support business growth and enhance livelihood opportunities.



The visit strengthened DST G-TEC's industry-community engagement and its efforts to connect grassroots enterprises with appropriate technologies, expertise, and innovation support. These engagements are an important step towards enabling technology-driven growth among local producers, MSMEs, and women-led enterprises.

3 Industry Visit to Mango Jelly Production Unit, Bheemali, Vizianagaram

DST GITAM Technology Enabling Centre (G-TEC) undertook an industry visit to a mango jelly production unit at Bheemali, Vizianagaram, to understand the local production process and gain insights into the challenges and opportunities associated with mango-based value-added products.
The visit provided the team with a firsthand understanding of the various stages involved in mango jelly production, from raw material selection and preparation to processing, quality control, and packaging. The interaction also highlighted the efforts and craftsmanship involved in maintaining product quality and consistency.





Such industry visits enable G-TEC to better understand the technology needs, operational challenges, and value-addition opportunities of local enterprises. They also help identify potential areas where appropriate technologies and technical expertise can contribute to improving productivity, quality, and market potential.

The visit reflects DST G-TEC's continued efforts to engage with grassroots enterprises and facilitate technology linkages, supporting innovation, value addition, and sustainable growth among local businesses.



PROBLEM STATEMENTS

1. Problem: Vacuum Sealing Solutions for Fresh Vegetables

Statement: There is a need for affordable and efficient vacuum sealing solutions for fresh vegetables to extend shelf life, maintain freshness and quality, and reduce post-harvest losses during storage and transportation. Suitable equipment is particularly required by small and medium-scale agri-entrepreneurs.

2. Problem: Value Addition of De-Oiled Rice Bran

Statement: De-Oiled Rice Bran (DORB), a by-product of solvent-based rice bran oil extraction, is abundantly available but currently has limited realisable value. There is a need for technologies and processing solutions to convert DORB into higher-value products and improve its economic potential.

3. Problem: Food Irradiation Technologies for Pulses

Statement: There is a need to explore food irradiation technologies for pulses, including suitable processing methods, product development opportunities, safety and regulatory standards, and potential commercial applications for improving shelf life and product quality.

4. Problem: Value-Added Extraction of Silica from Rice Husk Ash

Statement: Rice Husk Ash (RHA), generated as a by-product of rice husk combustion in boilers, is currently being sold with limited value addition. There is a need for efficient technologies to extract high-value silica and other useful materials from RHA for potential industrial applications.

PROBLEM STATEMENTS

5. Problem: Access to EDA Tools and Semiconductor Industry Collaboration

Statement: The development, simulation, and validation of electronic circuits and semiconductor designs are constrained by limited access to industry-standard Electronic Design Automation (EDA) tools such as Cadence and Synopsys. There is a need for access to licensed EDA platforms and collaboration opportunities with semiconductor companies to strengthen chip design and development capabilities

6. Problem: Continuous Manufacturing of Nano-Carbon Materials

Statement: Nano-carbon materials produced from coconut shells currently involve ball-milling and other batch-based processes that are time-consuming and lack process continuity. There is a need for a continuous and scalable manufacturing solution to improve production efficiency, consistency, and throughput.

7. Problem: Product Innovation in Sustainable Textiles

Statement: There is a need to identify and develop innovative products and technologies based on sustainable textile materials such as linen, hemp, bamboo, lotus fibre, coconut fibre, and other eco-friendly materials, with a focus on improving product performance, applications, and market potential.

8. Problem: Sustainable Management and Value Utilization of Cow Dung Waste

Statement: Cow dung waste generated from dairy farms and cattle-rearing activities is often inadequately managed, leading to environmental concerns, odor, and inefficient utilization of a valuable organic resource. There is a need for sustainable and economically viable solutions to convert cow dung into useful products, particularly through the production of biogas for renewable energy generation and organic manure for agricultural applications.

SECTORS OF FOCUS AT GITAM – TEC

- Smart Manufacturing
- Agri Tech
- Health Tech
- Food Technology
- Material Science
- Waste Management
- Toys

MoUs with Academia	23
MoUs with Industries	9
Technologies identified	257
Technologies mined	1503
Technologies transferred	3
Capacity Building for Industry & Academia	29

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STAY CONNECTED WITH G-TEC

Thank you for reading the latest edition of the GITAM Technology Enabling Centre (G-TEC) Newsletter! We hope you found the updates and insights informative and inspiring.

As we continue to advance our mission of fostering innovation, research, and collaboration, we encourage you to stay connected with us and participate in our various initiatives.

- Join our Events and Workshops to Enhance your Knowledge
- Collaborate with Us for Technology Transfer and Development

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Best regards,
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Together, let's drive innovation and make a difference!