



**GOJAN SCHOOL OF
BUSINESS AND TECHNOLOGY**

AN AUTONOMOUS INSTITUTION
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CONFERENCE PROCEEDINGS

**2ND INTERNATIONAL CONFERENCE ON GLOBAL
TRENDS IN ENGINEERING AND TECHNOLOGICAL
ADVANCEMENT (2ND ICGTETA'25)**

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**2ND ICGTETA
2025**

OCTOBER 25TH 2025
ASSOCIATE PARTNER



CHAIRMAN'S MESSAGE



DR. NATARAJAN G

I am delighted to announce that all departments have collaboratively organized the “2nd International Conference on Global Trends in Engineering and Technological Advancement (2nd ICGTETA’25)” and have successfully published its proceedings.

This joint effort reflects the dedication, hard work, and enthusiasm of our faculty and students. Initiatives like this not only promote academic excellence but also inspire innovation and research across various disciplines. I sincerely thank all Heads of Departments and staff members for their steadfast support. A special note of appreciation goes to the Editorial Board for their significant contributions in making this conference a remarkable success. Congratulations to everyone involved!

CHAIRPERSON'S MESSAGE



**MRS. BRINDHA
NATARAJAN**

I am delighted to extend my congratulations to the faculty and students of all departments who have demonstrated remarkable interest and shared their valuable knowledge in organizing the “2nd International Conference on Global Trends in Engineering and Technological Advancement (2nd ICGTETA’25)”.

Their enthusiasm, dedication, and boundless energy have been instrumental in making this conference a success. I am confident that their diligent efforts, meticulous planning, and sincere execution will lead to highly rewarding outcomes. My heartfelt best wishes go to all the committee members and participants of 2nd ICGTETA’25. I truly appreciate the dedicated efforts of our faculty and students who have made this event possible.

VICE-CHAIRMAN'S MESSAGE



MR. VISWANATHAN N

It is a great pleasure to witness the successful conduct of the “2nd International Conference on Global Trends in Engineering and Technological Advancement (2nd ICGTETA’25)” organized by Gojan School of Business and Technology. Events like these showcase our institution’s unwavering commitment.

To academic excellence and to nurturing a research-oriented mindset among students and faculty alike. At Gojan, we firmly believe that true learning emerges when knowledge is applied in real-world contexts. Our college emphasizes innovation, hands-on experience, and collaborative growth. This conference provides a valuable platform for participants to explore emerging trends, present their research, and engage with evolving technologies. I extend my heartfelt congratulations to the organizing team and all contributors for their dedicated efforts. Best wishes for a successful 2nd ICGTETA'25.

PRINCIPAL'S MESSAGE



DR. SELVAKUMAR C

On behalf of Gojan School of Business and Technology, I extend a warm welcome to all delegates, faculty members, research scholars, and student participants attending the “2nd International Conference on Global Trends in Engineering and Technological Advancement (2nd ICGTETA'25)”.

At GSBT, we are devoted to academic excellence and nurturing a dynamic learning environment that encourages exploration, innovation, and collaboration. This conference stands as a testament to our commitment to research and knowledge dissemination. As technology continues to advance, our management actively embraces emerging trends to stay at the forefront. 2nd ICGTETA'25 serves as a vital platform for exchanging ideas and presenting innovations. We express our sincere gratitude to our management, faculty, organizing team, and students for their steadfast efforts and invaluable support.

ACADEMIC AFFAIR'S MESSAGE



DR. ARUNSANKAR G

I am proud to share that our college is hosting the “2nd International Conference on Global Trends in Engineering and Technological Advancement (2nd ICGTETA’25)”. This conference brings together students, researchers, and academicians to exchange innovative ideas on emerging trends and advancements.

In today’s fast-paced world, where opportunities in engineering and technology are rapidly growing, events like 2nd ICGTETA’25 play a vital role in enhancing skill sets. Participating in such platforms sharpens technical knowledge, critical thinking, and research abilities—key traits for success in the modern engineering field. We are confident that 2nd ICGTETA’25 will foster collaboration, learning, and professional development.

STUDENT AFFAIR'S MESSAGE



MR. RAMADHURAI R

Our institution has always pursued the mission of achieving the impossible, and with the dynamic team at Gojan, failure is never an option. The central theme of 2nd ICGTETA'25 emphasizes interdisciplinary challenges requiring innovative and diverse perspectives.

I strongly believe this multidisciplinary conference will offer participants a transformative experience—enhancing their knowledge and broadening their outlook to address complex societal issues. This year, we are proud to have received an impressive number of high-quality papers from reputed institutions, reflecting the increasing interest in this conference. I extend my sincere gratitude to our Management and Principal for their constant support. May this platform continue to inspire innovation and foster collaboration.

CONFERENCE CHAIR'S MESSAGE



DR. NAFEEZ AHMED L

Engineering technologies play a pivotal role in driving modern innovations, advancing applied sciences, and enhancing automation. Their ongoing development continues to reshape our world, delivering cutting-edge solutions and promoting a more efficient and sustainable global ecosystem.

2nd ICGTETA'25 has been thoughtfully crafted as a platform for students, researchers, academicians, and industry experts to share technical knowledge, research outcomes, and collaborative strategies across various engineering fields. I extend my heartfelt thanks to our Honorable Chairman, Dr. G. Natarajan, and Respected Chairperson, Mrs. Brindha Natarajan, for their visionary leadership and unwavering support in bringing this conference to fruition. Thank you all for your active participation and valuable contributions, making 2nd ICGTETA'25 a significant academic achievement.

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AI-Driven Environmental and Stress-Responsive Calming System for Zoo Animals

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Abstract:

Zoo animals often experience stress due to fluctuating environmental factors, excessive noise, or irregular human activity, which can negatively affect their health and behavior. This research proposes an AI-driven environmental and stress-responsive calming system that continuously monitors zoo enclosures using a network of IoT sensors and intelligent data analytics. The sensing layer integrates temperature, humidity, air quality, light, sound, and motion sensors to detect environmental variations and behavioral anomalies. Real-time data are processed through an ESP32-based control unit and transmitted to a cloud platform through Wi-Fi and LoRa communication, where a machine learning model predicts stress levels based on environmental and behavioral parameters. When stress indicators exceed safe thresholds, the system automatically activates adaptive calming mechanisms—such as adjusting light intensity, temperature, or playing soothing sounds—to restore comfort. The system provides a user dashboard for zookeepers to visualize animal mood trends, environmental fluctuations, and intervention logs. Experimental simulations demonstrate that the proposed model can effectively reduce stress levels and maintain optimal living conditions, enhancing both animal welfare and management efficiency.

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