SciTech Chronicles

WOXSEN UNIVERSITY

SCHOOL OF SCIENCES & TECHNOLOGY

NEWSLETTER

FEBRUARY- 2025

Message

"REMEMBER, LEADERSHIP IS NOT JUST ABOUT ACHIEVING GOALS; IT'S ABOUT INSPIRING OTHERS TO ACHIEVE THEM TOGETHER. BY BLENDING THE WISDOM OF THE PAST WITH THE REALITIES OF THE PRESENT, LEADERS CAN NAVIGATE THE COMPLEXITIES OF THE MODERN WORLD AND CREATE LASTING IMPACT."

-Dr. Raul V. Rodriguez
Vice-President
Woxsen University

"I BELIEVE THAT EDUCATION IS NOT MERELY THE ACQUISITION OF KNOWLEDGE, BUT THE CULTIVATION OF WISDOM. WE WILL STRIVE TO CREATE A HOLISTIC LEARNING EXPERIENCE THAT FOSTERS INTELLECTUAL CURIOSITY, ETHICAL CONSCIOUSNESS, AND CULTURAL SENSITIVITY. BY PROVIDING OPPORTUNITIES FOR EXPERIENTIAL LEARNING, MENTORSHIP, AND COMMUNITY ENGAGEMENT, WE WILL EQUIP OUR STUDENTS WITH THE SKILLS AND VALUES NEEDED TO SUCCEED IN AN EVER-EVOLVING WORLD."

-Dr. Uma Ananda
Vice Chancellor
Woxsen University

Message

"IN MY SCHOOL OF TECHNOLOGY IT IS NOT JUST ABOUT THE CUTTING-EDGE LABS WITH THE LATEST GPUS AND SYSTEMS BUT THE ENVIRONMENT AND THE MENTORS AMONG THE FACULTY."

-Dr. Peplluis Esteva de la Rosa
Executive Dean
School of Technology

"AS DEAN OF THE SCHOOL OF SCIENCES, I'M PROUD OF OUR STUDENTS AND FACULTY FOR THEIR HARD WORK. OUR LABS ARE HELPING DRIVE EXCITING RESEARCH AND HANDS-ON LEARNING. I LOOK FORWARD TO THE CONTINUED SUCCESS OF OUR COMMUNITY."

-Dr. Daya Shankar
Dean
School of Sciences

Table of Contents

1. Udhgam 2025 5
2. Sciences & Technology News 8
3. Faculty Achievements 12
4. Student Achievements 16
5. Spreading Smiles, Honoring Strength 19
6. The Polaris Vision 21
7. Vocabify: A Student-Led Innovation at Woxsen University 23
8. Quantum Technology Advancements: Lessons from Mach-Zehnder Interferometry and Error Correction 25
9. Figurines 27
10. Emerging Trends in Science and Technology: Shaping the Future 29
11. My Experience as an Exchange Student in India 31
12. Academic Life at Woxsen University 32
13. Flexible Solar Cells:- The Future of Renewable Energy 33
14. Grok's Political Engagement and Its Impact on Right-Wing Narratives 35
15. Puzzle Time!! 36

Udhgam 2025

A Trailblazing Tech Fest at Woxsen University

Udhgam 2025, Woxsen University's first-ever tech fest, was a resounding success, bringing together innovation, creativity, and collaboration on an unprecedented scale. What began as an ambitious vision transformed into a remarkable celebration of technological excellence, problem-solving, and entrepreneurship. Organized by the Woxsen Technology Club, this event set a strong foundation for future tech enthusiasts to build upon.

A Festival of Innovation

With over 500 students participating, Udhgam 2025 proved to be a hub for technological ingenuity. The event featured multiple high-impact competitions designed to challenge and refine the technical and strategic skills of students.

Technical Competitions:

- **24-Hour Hackathon**: This intense coding marathon tested participants' endurance and problem-solving abilities. We extend our gratitude to Prof. Dr. Javier Serrano, Jayant Guduru, and Mallesham Devasane from GeeksforGeeks for evaluating the final projects.
    - 1st Place (Rs. 51,000): ICE BREAKERS – Yogeshwar CM, Tharun Raju, Sachin Kumar, Acsah Susan Mathew, Kanchana Krishna

    - 2nd Place (Rs. 20,000): Team Next Nexus – Samradh Agarwal, Ratul Dash, Mrudula Joshi, Veer Pratap Singh, Isha Syed
    - 3rd Place (Rs. 10,000): Coders No Cap – Anay Samarth, Harshit Chatterjee

- **DigiTech**: A 12-hour mini hackathon focused on rapid ideation and execution.
  - 1st Place (Rs. 2,500): Madivi Manideep, Vishnu Jillala, Sanjay Bukka
  - 2nd Place (Rs. 1,500): Samala Sripadh, Vishal Reddy
  - 3rd Place (Rs. 1,000): Monishwar Reddy Vardireddy, Vittal Karthik Vunnava, Pranav Yalla, Yogesh Kumar K, Srisanth Yerukola
- **Case Maze**: A competition that encouraged critical thinking through industry-driven challenges.
  - Winners (Rs. 3,000): Ipshita Chauhan, Rishita Lakshmi Gotety, Banreddy Rahul Reddy
- **Bull and Code**: This competition honed participants' skills in algorithmic trading and data-driven decision-making.
  - Winner (Rs. 3,000): Eshaan Michael

Beyond Competitions: Learning and Networking

Udhgam 2025 was not just about competitions—it was a convergence of ideas and knowledge. We were honored to host panel discussions and guest lectures featuring industry leaders, offering deep insights into emerging trends in technology, entrepreneurship, and innovation.

Showcasing Entrepreneurial Spirit and Innovation

- **Startup Mela**: Provided a platform for young entrepreneurs to showcase their groundbreaking ideas.
  - 1st Place (Rs. 3,000): Agro Vision – Namratha Saravani, Meghana
  - 2nd Place (Rs. 1,000): BizEDTech – Nrusimha Naidu Ch
  - 2nd Place (Rs. 1,000): Aharya – Avani, Tanishqa Akula
- **Project Expo**: A stage for students to present their cutting-edge innovations.
  - 1st Place (Rs. 2,500): Sojith Koganti, Praveen Kumar Pudi
  - 2nd Place (Rs. 1,500): Enamala Yashwanth, Chukka Ashwith Ram, Rishi Vardhan, Praveen Nandakuduru
  - 3rd Place (Rs. 1,000): Bharkavi PM, Chaithanya Jyothi, Bhavya Sree

Gratitude to Our Supporters

Udhgam 2025 would not have been possible without the unwavering support of our sponsors, faculty, and mentors. A special thanks to Dr. Bondada Raghavendra Rao and the Bondada Group for their generous sponsorship, which played a crucial role in making this event a success.

We also extend our deepest appreciation to Woxsen University, Raul Villamarin Rodriguez, Uma Ananda Dagnino González, Pep Lluis Esteva, Daya Shankar Tiwari, Amogh Deshmukh, Dr. Sarah Mariam Roy, Anand Kakarla, and the School of Technology (SoT) and School of Sciences (SoS) for their continuous support and encouragement.

A heartfelt thank you to our mentor, Vaishali Thakur, whose guidance was invaluable in ensuring the seamless execution of Udhgam 2025.

A Festival to Remember

Most importantly, we thank every participant, volunteer, and organizing team member. Your passion, determination, and teamwork made Udhgam 2025 more than just a tech fest—it became a defining experience for everyone involved. From late-night brainstorming sessions to final presentations, the energy and enthusiasm were palpable in every moment.

Udhgam 2025 was just the beginning. We look forward to an even bigger and better edition next year, fostering more innovation, collaboration, and learning. Here's to a bright and technologically advanced future!

Sciences And Technology News

BIOMACS:

Woxsen University's School of Sciences, in collaboration with Swinburne University of Technology, Australia, successfully hosted BioMACS'25, a pioneering hybrid conference dedicated to advancing biomedical and applied clinicalsciences.

The event brought together distinguished speakers and participants from around the world, with an inspiring keynote address by Prof. Joseph Wang from University of California, Berkeley, San Diego, setting the stage for groundbreaking discussions in biomedical engineering.

Over four days, experts engaged in thought-provoking sessions covering Environmental Biology, Cancer Research, AI in Medicine, Biosensors & Diagnostics, and more. This collaboration between Woxsen University and Swinburne University of Technology marks a significant step in fostering global research and innovation in biomedical sciences.

Vidushika:

The School of Sciences, in association with the School of Technology at Woxsen University, proudly celebrated the 10th Anniversary of the UNESCO-declared International Day of Women and Girls in Science with "VIDUSHIKA" – Women in Science Forging the Frontiers in STEM on February 11th, 2025.

The event, held from 2:00 PM to 5:30 PM IST, was a stimulating and inspiring occasion that featured: An opening address by Dr. Stella Christie, Honorable Deputy Minister of Higher Education, Science, and Technology, Indonesia. The felicitation of the Guest of Honor, Prof. Urbasi Sinha, Gates Cambridge Impact Prize 2025 Winner.

Women in STEM from across the world sharing their inspiring journeys. Oral and poster presentations by Woxsen University students. "STEMINISTS are Fun" – engaging and interactive cultural activities celebrating women in science. The event successfully brought together aspiring scientists, educators, and innovators, fostering a sense of empowerment and recognition for women in STEM. It was a remarkable celebration of achievements, inspiration, and collaboration in science and technology!

Vigyanshala:

The School of Sciences at Woxsen University organized Vigyanshala on February 28th, 2025, to celebrate National Science Day. Held at the Woxsen University Campus, the event focused on the theme "Empowering Indian Youth for Global Leadership in Science and Innovation for Viksit Bharat."

The day was packed with engaging activities, including a quiz competition, drawing competition, Science Sham, and the Viksit Bharat Project Expo, where teams of 3-5 members showcased their innovative ideas. The university had the privilege of hosting Prof. Subha Narayan Rath from the Indian Institute of Technology Hyderabad's Department of Biomedical Engineering as the Guest of Honor. The Project Expo, held in LT1 and the Admin Area (Gateway), provided a platform for young minds to present their creativity and scientific prowess. The event successfully brought together science enthusiasts, fostering innovation and a spirit of scientific inquiry among participants. Winners were awarded exciting prizes, and attendees actively engaged in interactive and thought-provoking sessions, making Vigyanshala a remarkable celebration of science, learning, and innovation!

National Science Day:

The BioMACS Research Center, School of Science, Woxsen University successfully hosted a one-day virtual symposium, Diagnosis Unveiled: Advances in Diagnosis and Therapies for Diabetes from Phytochemicals to Biologics, on February 17, 2025.

The event featured esteemed speakers, including Dr. Justina William (Consultant Pathologist, Dr Lal Path Labs, Kolkata), Dr. Bahaa Grace (Emeritus, Assistant Professor, Cairo University, and Internal Medicine Specialist, Burjeel Day Surgery Centre, Abu Dhabi), and Dr. Pawan Prabhakar (Assistant Professor, Woxsen University). Guided by Advisor Dr. Daya Shankar,

Dean, School of Science, The symposium brought together leading experts to discuss cutting-edge advancements in diabetes diagnosis and treatment, ranging from natural compounds to biologics. The event provided valuable insights into the latest developments in diabetes research, fostering knowledge exchange among participants.

1st International Symposium:

The 1st International Symposium on Frontiers in Drug Discovery was successfully held on February 11-12, 2025, bringing together computational intelligence and experimental innovation. Featuring distinguished speakers from Israel, India, and USA, the virtual event provided valuable insights for students, researchers, and academics, with awards recognizing the best presentations.

National Periodic Table Day:

The School of Sciences at Woxsen University successfully celebrated National Periodic Table Day on 7th February 2025, from 10:00 AM to 1:00 PM, featuring an insightful talk by Dr. Shaikh Nazmul Hasan Mohammad Dostagir, Assistant Professor at Hokkaido University, Japan, along with a quiz competition and interactive periodic table-themed puzzles and activities that engaged and entertained chemistry enthusiasts.

Generative AI for Future Entrepreneurs :

The School of Science at Woxsen University successfully organized an intensive 5-day workshop on Generative AI for Future Entrepreneurs from February 19th to 25th, 2025. Held at C-201, Woxsen University, the workshop was conducted in association with the Ministry of Micro, Small and Medium Enterprises, Government of India – Development and Facilitation Office, Hyderabad. Designed to bridge the gap between cutting-edge AI technology and entrepreneurial applications, the event provided practical insights and hands-on experience for students, startup founders, and business professionals. Key speakers included Dr. Daya Shankar Tiwari, Dean of the School of Science at Woxsen University, and Shri Gulshan Bist, Assistant Director at MSME DFO, Hyderabad. This workshop marked a significant collaboration between academia and government, with support from Trade Tower IIIDC, MSME, Institution's Innovation Council, and other esteemed organizations.

FACULTY ACHIEVEMENTS

Vaishali Thakur

Assistant Professor, SOT, Woxsen University

Recognition in Apple Security Researcher Hall of Fame

Vaishali Thakur has been honored with a place in Apple's Security Researcher Hall of Fame for her significant contributions to securing Apple's ecosystem. As a dedicated cybersecurity researcher, she has played a crucial role in identifying vulnerabilities and ensuring a safer digital environment. This recognition highlights her expertise in ethical hacking, responsible disclosure, and her commitment to strengthening global cybersecurity.

Hall of Fame Recognition for Securing the U.S. Department of Commerce

Vaishali Thakur has received a prestigious recognition from the U.S. Department of Commerce 🇺🇸 for her exceptional contributions to securing critical systems. This achievement underscores her passion for cybersecurity and her relentless efforts in protecting key digital infrastructures from potential threats. Her work continues to inspire the cybersecurity community in its mission to build a more secure digital landscape.

Dr. Segun Emmanuel Ibitoye

Assistant Professor, SOT, Woxsen University

Published an article titled Dynamic features of heat transfer in a square enclosure induced by an adiabatic rotating circular cylinder with double-diffusive buoyancy forces

Journal: ZAMM (Journal of Applied Mathematics and Mechanics)

Dr. Abhaya Kumar Pradhan

Assistant Professor, SOT, Woxsen University

Published an article titled Advancing idiopathic pulmonary fibrosis prognosis through integrated CNN-LSTM predictive modeling and uncertainty quantification

Journal: Biomedical Signal Processing and Control

Dr. Brundaban Mishra

Associate Professor and Co-Chairperson of the Centre of Excellence-South Asian Studies, SoT, Woxsen University

Dr. Brundaban Mishra has successfully secured a government-sanctioned grant of ₹2 Lakhs from the Indian Council of Social Science Research (ICSSR). This grant is awarded for organizing an inter-national seminar titled "Culture of the Street: Reappropriating Territoriality in Deterritorialized Odisha."

Dr. Ayan Banerjee

Assistant Professor, School of Sciences, Woxsen University

Dr. Ayan Kumar Banerjee has been honored with the Life Membership (Membership No.: LM920) of the *National Society of Fluid Mechanics and Fluid Power* (NSFMFP). Elected as a member of The American Society of Mechanical Engineers (ASME) for the year 2025. This prestigious membership acknowledges his dedication to promoting the art, science, and practice of mechanical engineering. It grants him all the privileges as specified by the ASME Constitution and demonstrates his active involvement in the global mechanical engineering community.

Life Membership in The National Society of Fluid Mechanics and Fluid Power (NSFMFP)

Bharathi Gamgula *(PhD Scholar)*,
Dr. S Bhanu Prakash
(Assistant Proffessor)

Published an article titled Enhanced dynamic inertia particle swarm optimization with velocity clamping for accurate parameter extraction in one-diode and two-diode solar PV models

Journal: World Journal of Engineering

Krishna Vamshi Ganduri *(PhD Scholar)*,
Dr. Bhargav Prajwal Pathri
(Assistant Proffessor)

Published an article titled Adaptive Intelligence in Warehouse Robotics: Efficient Pick-and-Place Robot for Dynamic Environments

Journal: Journal of Electrical Systems

STUDENT ACHIEVEMENTS

Pritam Priya has secured 4th place in 24hrs National Hackathon organized by BITS – Birla Institute of Technology and Science, Goa on 7th – 9th February 2025, Quark 2025 Cybernetic Euphoria at BITS Goa on February 7th - 9th Feb 2025, and completed Remark Technical Skill Workshop on Ethical Hacking at IIT Hyderabad on 15th - 16th February 2025.

Abbireddy Tritej has secured 4th place in 24hrs National Hackathon organized by BITS – Birla Institute of Technology and Science, Goa on 7th – 9th February 2025 and completed Remark Technical Skill Workshop on Ethical Hacking at IIT Hyderabad on 15th - 16th February 2025.

Sudarshan Maddi has completed the "Remark Skill Technical Workshop on Data Science" in association with Elan & nvision, IIT Hyderabad, on 15th – 16th February 2025.

Mann Motivaras has participated in the workshop Basic Tools of Quantum Computing held from 7th – 8th February 2025 at Woxsen University, Hyderabad.

Hemanth Reddy has secured 16th place in 24hrs National Hackathon organized by BITS – Birla Institute of Technology and Science, Goa on 7th – 9th February 2025

Jadhav Mayur has presented on *"Real-Time Emotion detection: A Robust Framework for Facial Expression Recognition with Dynamic Emoji Representation"*, in the International Conference on Information and Communication (ICICS 2025), Organized by the VVCE, Mysuru on 4th - 5th February 2025.

Palak Dwivedi and **Ojashwini Dubey** has participated in the Indian Conference on Medtech Innovations (ICMI -2025), held at IIT jodhpur and Aims jodhpur on 15th - 17th February 2025

Aushtosh Reddy won a second prize in Roboquest, National Annual Technical Symposium, CONVERGENCE 2K25, VNRVJIET'S Hyderabad on 22nd - 23rd February 2025.

Spreading Smiles, Honoring Strength

-Meher Gayatri

On International Women's Day, I decided to do something simple yet meaningful; something that would bring unexpected joy. Armed with a bunch of roses, I walked around the university, handing them out randomly to women I came across. No elaborate speeches, no grand gestures - just a single rose, a token of appreciation, a reminder that they were valued.

What struck me the most wasn't just the gratitude but the pure surprise on their faces. Many of them hadn't expected to receive anything that day, and that made each moment even more special. Some smiled shyly, some laughed in delight, and a few even had tears in their eyes.

As I continued, something unexpected happened. Some women opened up about their lives, their struggles, and their achievements. A professor shared how she had faced numerous challenges in her career but never let them define her. A student spoke about battling self-doubt and how small acts of kindness like this made her day. Another woman told me she had never received a flower before, and the simple gesture meant more than words could express.

That day, I realized how little it takes to make someone feel special. A single flower, a kind word, a small act of recognition, it all adds up. In a world that often rushes past, taking a moment to appreciate the people around us can have a lasting impact. But beyond that, it made me reflect on the strength of women. Like roses, they bloom with grace but guard themselves with thorns - facing challenges, breaking barriers, and yet standing tall. Women today are leading nations, heading businesses, excelling in science, sports, and arts. They are pilots soaring the skies, doctors saving lives, and engineers shaping the future.

India itself has witnessed the rise of extraordinary women who have left an indelible mark on the world. Kiran Bedi broke barriers to become the first female IPS officer, paving the way for many more. Kalpana Chawla touched the stars as an astronaut, inspiring generations. Indra Nooyi led PepsiCo as its CEO, proving that women can dominate the corporate world. Mary Kom, a five-time world champion boxer, showed that strength isn't just physical but also in perseverance. And today, leaders like Nirmala Sitharaman, the Finance Minister of India, hold some of the most powerful positions in governance.

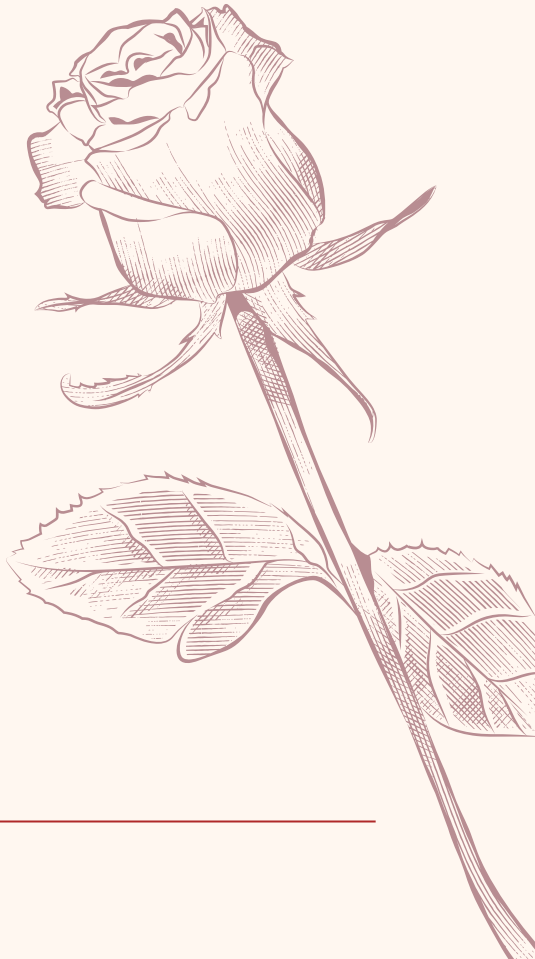
As I walked back, my hands were empty, but my heart was full. The joy, the connection, and the stories shared with me made this Women's Day one I would never forget. It wasn't just about giving roses, it was about acknowledging the strength, resilience, and achievements of women.

Every woman is like a *"rose"* beautiful, resilient, and unbreakable. And in celebrating them, we don't just honor their journey; we inspire a future where every woman can bloom without fear, without barriers, and with the recognition she truly deserves.

She, Like a Rose

She blooms with grace in morning light,
Her petals soft, her heart so bright.
Yet hidden deep, her thorns reside,
A strength that keeps her soul alive.

Through storms that bend, through winds that break,
She stands so firm; she will not shake.
The world may try to pluck her free,
But roots run deep, she dares to be.



Her fragrance sweet, a gift so pure,
Yet trials test what she'll endure.
She weathers pain, yet still she grows,
A warrior wrapped in crimson rose.

For every thorn, a tale untold,
Of battles fought, of dreams so bold.
Yet still she stands, in love, in strife,
A rose - holds beauty, strength, and life.

The Polaris Vision

-Dr. Pep Lluis Esteva

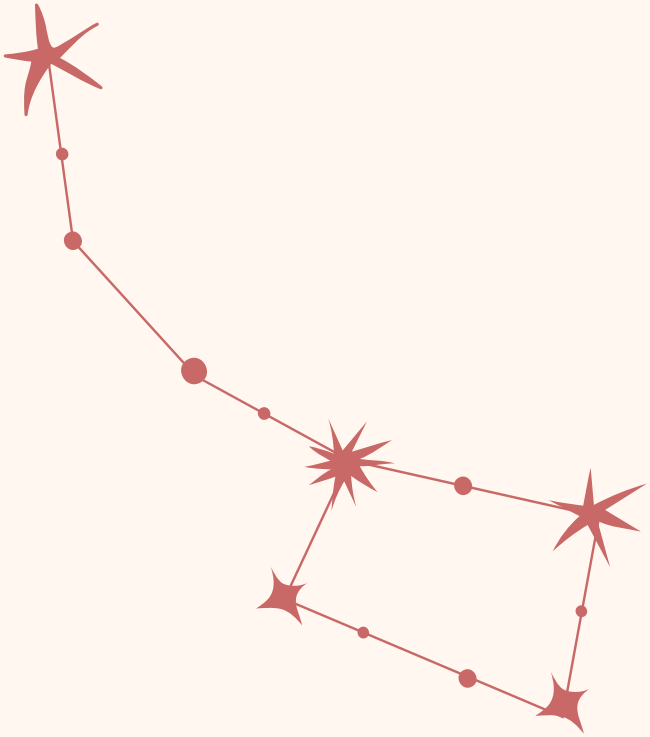
Universities have long evolved from their medieval roots as mere lecturing halls, where knowledge was passively transcribed for future generations, into dynamic, research-driven institutions. By the late 20th century, they had embraced three main missions: teaching, research and development (R&D), and knowledge transfer through industry collaboration, patents, and startups. However, with the dawn of the internet age and the exponential acceleration of knowledge creation, universities today stand at a crossroads, requiring more than incremental additions of technology and further expansion of missions. The core challenge now is whether universities should specialize in certain areas or undergo a radical transformation akin to their earlier transition from medieval lecturing to modern teaching and research.

This transformation entails not merely layering new tools like AI or the metaverse on top of old structures, but rather reshaping the very essence of universities. Historically, they progressed by shedding the passive dissemination of existing knowledge, ultimately embracing active teaching and intensive research.

Now, institutions must go further and abandon traditional teaching altogether, moving toward learning by doing. This involves orienting students—recast as junior scholars—toward research, entrepreneurial ventures, and societal projects. In this model, professors shift from teachers to leaders of change, doing research, creating knowledge, facilitating high-impact projects and mentoring junior scholars in hands-on, collaborative endeavors.

Such an evolution redefines the missions of universities, consolidating them from three (teaching, research, transfer) or more to two powerful dimensions: Research and Transfer (R&T). Teaching, in its conventional sense, becomes an experiential, immersive journey, wherein students learn by conducting research, addressing real-world challenges, launching startups, and authoring publications. These future-ready skills—creativity, adaptability, critical thinking, and collaboration—are increasingly crucial in a world shaped by continuous disruption. Universities that adopt this approach will become transformative ecosystems, fostering leadership and purposeful innovation.

Institutions like MIT, Stanford, ETH Zurich, and Woxsen University are precursors of this model, emphasizing applied research, entrepreneurial engagement, and impact. I point to the importance of cultivating the next generation of scholars equipped with "durable skills" that differentiate humans from machines. This implies a shift away from static classrooms into immersive environments where theory and practice intersect. Professors and students alike become co-creators of knowledge, jointly tackling challenges and driving societal progress.



To infity and beyond!

This forward-looking model, termed the Polaris vision requires immediate action rather than long-term futurism. The world needs leaders, innovators, and change-makers who have a clear sense of purpose and the ability to use technology responsibly. By adopting a simplified R&T approach grounded in learning-by-doing, universities can transcend the limitations of outdated structures. The transformation is already underway in a few trailblazing institutions, signaling a tipping point where the rest must follow. Our mission, and my particular mission as Executive Dean of the School of Technology, is to support and facilitate this evolutionary leap, ensuring that the new generation—empowered as junior scholars—will thrive in an era defined by rapid technological advances and ever-shifting societal demands.

Vocabify

A Student-Led Innovation at Woxsen University

-Adarsh Jagannath

We are thrilled to share an inspiring story of innovation and dedication from our Woxsen University community. A team of first-year B.Tech CSE students has developed Vocabify, a comprehensive platform designed to enhance English Communication Skills for engineering students.

Led by A.Adarsh Jagannath (Software Developer - Founder), with Prashlesh Pratap Singh(Product Designer & Developer - CoFounder), Yashaswin Sharma (System Architecture), and Rouvin Sam Ebenezer (UI-UX Designer & Research Analyst), this talented team of first-year students has worked tirelessly to transform a basic mobile app

Picture(left to right)- A.Adarsh Jagannath, Prashlesh Pratap Singh, Dr. Subin Scaria, Yashaswin Sharma, Rouvin Sam Ebenezer

The journey began when Dr. Subin Scaria, our esteemed English Communication Skills professor, created a simple Python program to help students expand their vocabulary. This sparked curiosity among students, who saw an opportunity to build something more substantial.

into an ambitious web platform. Their creation will soon offer complete coverage of our engineering communication curriculum through responsive, personalized learning experiences.

Throughout this journey, the team has received unwavering support from our English faculty, including Dr. Subin Scaria and Dr. Sarah. Their encouragement has been instrumental in pushing this project toward its upcoming launch.

What makes Vocabify truly special is the passion and dedication of our students who have poured countless hours into this initiative. Their commitment to enhancing education for their peers demonstrates the innovative spirit that defines Woxsen University.

As we prepare for the official launch in the coming weeks, we invite the entire Woxsen community to join us in celebrating this remarkable achievement. The students behind Vocabify have not only created a valuable educational resource but have also exemplified the entrepreneurial mindset we strive to cultivate at our institution.
We look forward to sharing more details about this exciting development and how it will benefit our students' learning experiences.

With gratitude for our talented community,
The Woxsen University Family.

Quantum Technology Advancements: Lessons from Mach-Zehnder Interferometry and Error Correction

-Dr. Ram Soorat

In the constantly changing world of quantum technology, precision and reliability in quantum computing are a top priority challenge. A recent research by Dr. Ram Soorat and his team from Woxsen University and the University of Delhi provides new lessons on how to overcome this challenge through the use of the Mach-Zehnder Interferometer (MZI) and quantum error correction (QEC) techniques.

The study investigates the dynamics of coherent and superposition states, that are the building blocks of quantum mechanics and information processing. Coherent states are the best because they are stable, yet superposition states enable quantum systems to be in many configurations at the same time—being the foundation of the tremendous power of quantum computing.

Yet, quantum systems are famously prone to decoherence-induced errors and environmental noise, which can drastically affect computational precision. The research highlights the significance of Shor's error correction code, a key QEC approach that identifies and fixes both bit-flip and phase-flip errors. By incorporating this code in the MZI framework, the researchers established a stable system that could minimize errors during quantum computations.

One of the key contributions of this work is the quantum analogue simulation of MZI in the Wolfram Quantum Framework. With this, the group explored the behavior of superposition states in the interferometer and evaluated the effects of different types of errors. By adding controlled errors to simulated quantum circuits

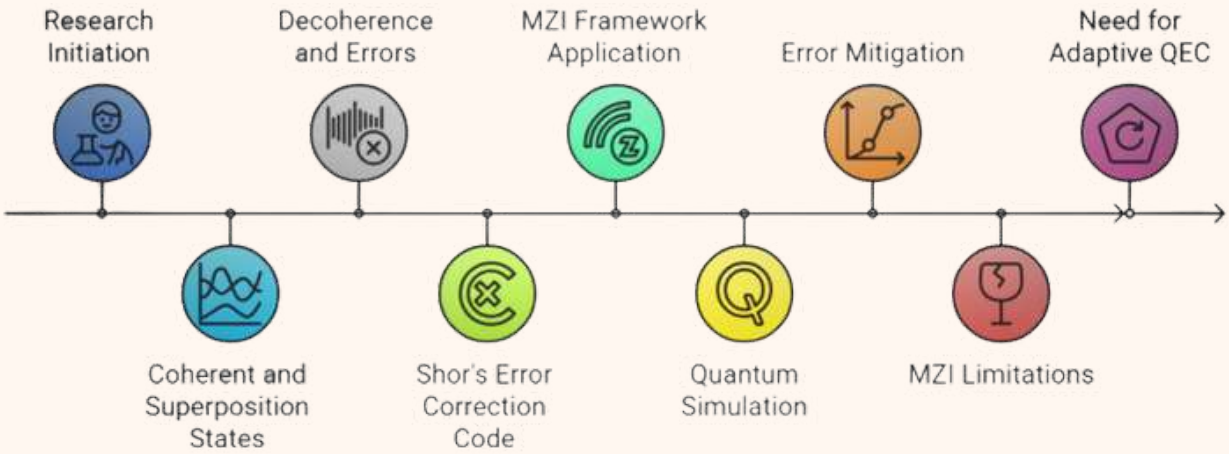


Fig: Advances in Quantum Technology

and implementing the Shor code, the study was able to effectively mitigate errors, especially in known coherent and superposition states.Notably, the MZI configuration worked effectively in error correction for known states but demonstrated weaknesses with unknown superposition states, indicating the necessity for more sophisticated and adaptive QEC techniques in intricate quantum systems.

This study not only confirms the role of MZI as a universal tool for quantum computing but also emphasizes the need for integrated error correction methods to build fault-tolerant and scalable quantum systems. With quantum technology advancing towards practical applications, this type of innovation in interferometry and error correction is key to developing quantum communication and computing technologies. The research, which appears in the Journal of Quantum Computing, is an important milestone in the development of robust quantum systems, enabling future quantum optics research, and enhancing the fidelity of quantum information processing.

Figurines

- Asmabi

Sarah walked through the crowded market, her mother's shopping list crumpled in her hand. The scent of spices and roasted nuts filled the air, but she barely noticed. Anime had once been her world—until her father died. Now, the sight of anything related to it only twisted a knife in her heart.

A small wooden stall stood at the corner, barely noticeable among the flashing neon signs. Rows of figurines lined the table—intricately designed, eerily familiar.
And there they were.

A nine-tailed fox and the prince. The exact ones her father had once promised to buy her.
Her breath hitched. The sight she wished never to see again.
She took a step forward, drawn by something beyond logic. Her fingers trembled as she reached out— And then she heard it.

"Sarah?" The voice came from nowhere and everywhere at once. Her heart stopped.
It was her father.

She could not believe her ears. The voice that once faded from her memories started to resonate again. She asserted again,
"Impossible."

She turned and walked away, but with every step, she felt the weight of something unfinished pressing down on her. A drop of water touched her dried hands. Even before she realized it, her heart started pouring out all the piled-up emotions.
She never thought it would be that hard to walk back home. But once again in her life, she gathered courage and went back to the shop.
She could barely see the figurines as she wiped the tears off her face.
The shopkeeper, an old man with piercing grey eyes, watched her intently. "You seem drawn to them," he said, his voice carrying an odd knowingness.
Sarah hesitated, her fingers hovering over the fox figurine. "Where... where did you get these?" she asked, her voice barely a whisper.
The old man gave a cryptic smile. "They came from places beyond your imagination," he said. "But tell me, child... what did you hear?"
Sarah's pulse quickened. He knows.

Her mind screamed at her to walk away, but her heart kept her rooted in place. Slowly, she picked up the fox figurine. The moment her skin touched its smooth surface, the world around her flickered. For a split second, she wasn't in the market anymore. She saw a dimly lit room—shelves stacked with books, the soft hum of an old radio, and a man sitting by the window.

Her father.

She gasped, stumbling back, and the vision vanished. The figurine slipped from her hands, clattering onto the table. The shopkeeper leaned forward, his gaze sharper now. "You saw it, didn't you? The world where he still exists."

Sarah's breath hitched. "What... what is this?"

The old man sighed. "A bridge. But only if you're willing to cross it."

She looked at the figurine again, heart pounding. Could it be possible? Could she truly speak to him?

Tears welled in her eyes as she picked it up again. The moment her fingers closed around it, the market disappeared.

She was standing in the dimly lit room. Her father looked up from his chair. And smiled.

"Sarah," he said softly. She let out a breath she didn't know she was holding. "Dad..."

For the first time in years, she felt whole again.

Somewhere in the real world, the shopkeeper watched the empty stall where Sarah once stood. He smiled knowingly and whispered, "Another soul has found its way home."

Emerging Trends in Science and Technology: Shaping the Future

-Dr. Suman Chirra

"The best way to predict the future is to invent it"

– Alan Kay

The world of science and technology is evolving at an unprecedented pace, driving transformative changes across industries and reshaping the way we live, work, and interact. As we step into a new era of innovation, several emerging trends are poised to redefine the future. These advancements are not just about technology; they are about creating a better world for generations to come. Here are some key developments to watch:

1. Artificial Intelligence and Machine Learning

Artificial Intelligence (AI) and Machine Learning (ML) continue to dominate the technological landscape. From predictive analytics to natural language processing, AI is revolutionizing industries such as healthcare, finance, and manufacturing. Innovations like generative AI (e.g., ChatGPT) and autonomous systems are pushing the boundaries of what machines can achieve, making them smarter and more intuitive.

"AI is not a threat to humanity; it is a tool that can amplify our potential and solve problems we once thought impossible."

2. Quantum Computing

Quantum computing is no longer a distant dream. With the potential to solve complex problems in seconds—problems that would take classical computers millennia—this technology is set to transform fields like cryptography, drug discovery, and climate modeling. Companies like IBM, Google, and startups are racing to achieve quantum supremacy, marking a new frontier in computational power.

"Quantum computing is not just about faster calculations; it's about unlocking the mysteries of the universe."

3. Biotechnology and Genetic Engineering

Advancements in biotechnology, particularly CRISPR and gene-editing technologies, are opening doors to personalized medicine and sustainable agriculture. Scientists are now able to modify genetic codes to treat diseases, enhance crop yields, and even combat climate change. The convergence of biology and technology is creating a new paradigm in healthcare and environmental sustainability.

"With biotechnology, we are not just healing the world; we are redesigning it."

4. Green Technology and Renewable Energy

As the world grapples with climate change, green technology is gaining momentum. Innovations in solar and wind energy, energy storage systems, and carbon capture technologies are paving the way for a sustainable future. Electric vehicles (EVs) and smart grids are also becoming mainstream, reducing our reliance on fossil fuels and minimizing environmental impact.

"The future is green, and the time to act is now. Every innovation brings us closer to a sustainable planet."

5. Extended Reality (XR): AR, VR, and the Metaverse

Extended Reality (XR), which includes Augmented Reality (AR), Virtual Reality (VR), and Mixed Reality (MR), is transforming industries like gaming, education, and healthcare. The concept of the metaverse—a virtual, interconnected universe—is gaining traction, offering immersive experiences and new opportunities for collaboration and commerce.

"The metaverse is not just a virtual world; it's a canvas for human creativity and connection."

6. Internet of Things (IoT) and Smart Cities

The Internet of Things (IoT) is connecting devices like never before, enabling seamless communication between machines, appliances, and infrastructure. Smart cities are leveraging IoT to optimize traffic management, reduce energy consumption, and enhance public safety. This trend is creating a more efficient and interconnected world.

"In a world of IoT, every device tells a story, and every connection builds a smarter future."

7. Space Exploration and Commercialization

Space technology is no longer limited to government agencies. Private companies like SpaceX, Blue Origin, and others are driving the commercialization of space exploration. From satellite constellations to plans for Mars colonization, the space industry is expanding rapidly, offering new opportunities for innovation and discovery.

"The stars are not the limit; they are just the beginning."

Conclusion

The rapid pace of technological advancement is both exciting and challenging. As these trends continue to evolve, they hold the potential to address some of humanity's most pressing challenges while creating new opportunities for growth and innovation.

"The future belongs to those who believe in the beauty of their dreams." – **Eleanor Roosevelt**

By staying informed and embracing these changes, we can collectively shape a brighter, more sustainable future. Let us dare to dream, innovate, and inspire, for the power to change the world lies within each of us.

My Experience as an Exchange Student in India

-Mauro

Studying in India is an amazing experience. At Woxsen University, I am learning a lot, meeting great people, and exploring different places.

My classes at Woxsen are really interesting. The teachers are friendly and always ready to help. The university has a modern campus, great labs, and many opportunities to work on projects with other students. Studying Artificial Intelligence and Machine Learning here is exciting and challenging.

One of the best parts of being in India is experiencing its culture. The country is full of history, beautiful places, and amazing food. At first, the food was super spicy, but now I really enjoy it! Trying different dishes, like biryani in Hyderabad or street food in Mumbai, is always a fun adventure.

I also celebrated Holi, the festival of colors, and it was an unforgettable experience. The energy, the music, and the joy of the people made it really special.
Besides exploring India, I also had the chance to visit Oman, and it was incredible! The landscapes are stunning, the people are super friendly, and the whole trip was just unforgettable.

The best part of this journey is the friends I am making. Everyone is so welcoming and makes me feel at home. Whether traveling together, working on projects, or just having fun, these friendships make my time in India even more special.

Right now, I feel grateful for everything I am experiencing. Studying at Woxsen, traveling, and meeting amazing people is truly life-changing. If you're thinking about studying abroad, India is a great place to explore and learn!

Academic Life at Woxsen University

-Carlos

Attending Woxsen University has been an incredible experience within my exchange program. The lectures are interesting and informative, with a high focus on hands-on learning and application to the real world. The faculty members are extremely warm, careful and caring, always helping us with projects, exams, assignments and other things. Their openness to mentor and teach us has helped make learning enjoyable and effective.

People are always very receptive and open-minded, so we had the opportunity to meet a lot of friends and go on trips with them to discover the country. We traveled to Mumbai, Hyderabad, Delhi, Agra and Mathura since we arrived, a thriving experience where we could discover different realities. The cities vigor, culture, and pace of life were so different than in Europe. Visiting the Gateway of India, walking on Taj Mahal, and celebrating holi are things I won't forget. For us, India is a whole different world than the one we're used to, very colorful and rich in every aspect. Everything is different, from architecture to culture passing through food (wich was a little bit spicy at the start).

But, as my study abroad program is nearing its conclusion, I am taking with me a heart filled with memories – of vibrant festivals, spicy cuisine, enriching lessons, and numerous adventures. India has not only expanded my intellectual horizons but also nourished my soul with its warmth, diversity, and beauty.

To anyone who is thinking of an exchange program, I would strongly suggest Woxsen University and the amazing experience of studying in India. It is a learning, growing, and friendship experience that will last a lifetime.

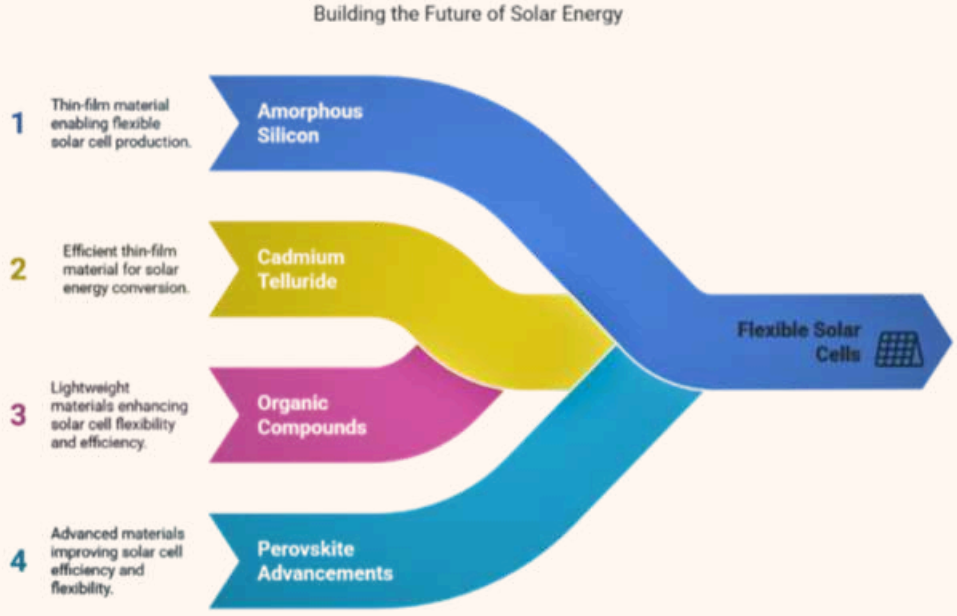
Flexible Solar Cells - The Future of Renewable Energy

-Dr. Ramakrishna Madaka

Flexible solar cells are revolutionizing the renewable energy landscape by offering a lightweight, adaptable, and efficient alternative to traditional rigid solar panels. These innovative photovoltaic devices are made from materials that can bend, fold, and conform to various surfaces, making them ideal for a wide range of applications, from portable electronics to building-integrated photovoltaics (BIPV). As the demand for clean energy grows, flexible solar cells are emerging as a key technology to meet global energy needs sustainably.

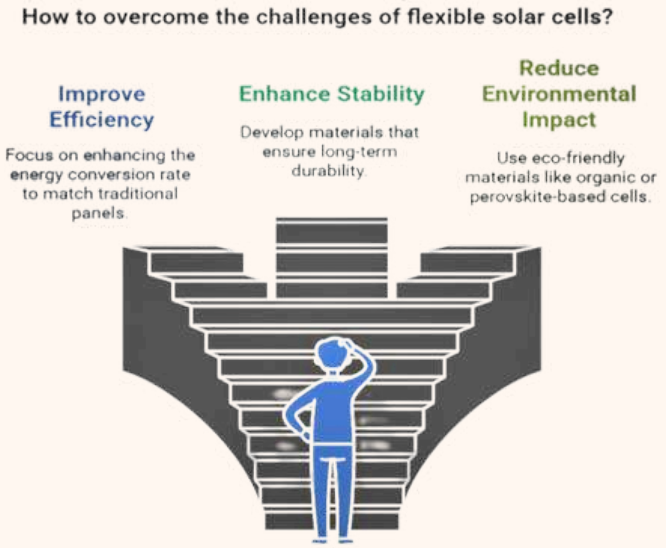
How Flexible Solar Cells Work

Flexible solar cells operate on the same basic principle as conventional solar panels: they convert sunlight into electricity using the photovoltaic effect. However, instead of using rigid silicon wafers, flexible solar cells are made from thin-film materials such as amorphous silicon, cadmium telluride (CdTe), or organic photovoltaic compounds. These materials are deposited onto flexible substrates like plastic, metal foil, or even fabric, allowing the cells to bend without breaking. Recent advancements in perovskite solar cells have further enhanced the efficiency and flexibility of these devices, making them a promising candidate for future energy solutions.



Advantages of Flexible Solar Cells

Flexible solar cells represent a significant advancement in solar technology, offering multiple advantages over traditional rigid panels. Their lightweight and portable nature makes them perfect for applications ranging from camping equipment to wearable tech and emergency power solutions. Their versatility allows them to be integrated into curved surfaces like backpacks, car roofs, and clothing, while also finding architectural applications in windows and building facades. From a manufacturing perspective, these thin-film cells require less material than conventional silicon panels, lowering production costs, especially when produced via efficient roll-to-roll manufacturing techniques. Recent materials science breakthroughs have enhanced their durability, making them increasingly resistant to cracking and degradation when stressed, which translates to extended lifespans and reliable performance across diverse environmental conditions.



Challenges and Future Prospects

Despite their many advantages, flexible solar cells face some challenges. Their efficiency, while improving, still lags behind that of traditional silicon-based panels. Additionally, issues related to long-term stability and environmental impact, particularly with materials like cadmium, need to be addressed. Researchers are actively working on developing more efficient and eco-friendly materials, such as organic and perovskite-based solar cells, to overcome these limitations. The future of flexible solar cells looks bright. As technology advances, these cells are expected to become more efficient, affordable, and widely adopted.

Their potential to integrate seamlessly into everyday life could transform how we generate and use energy, paving the way for a more sustainable and energy-independent future.

In conclusion, flexible solar cells represent a significant step forward in renewable energy technology. By combining flexibility, portability, and cost-effectiveness, they offer a promising solution to meet the world's growing energy demands while reducing our reliance on fossil fuels.

Grok's Political Engagement and Its Impact on Right-Wing Narratives

-Chris Jose

As artificial intelligence continues to merge with political discussions in today's fast-paced technological environment Grok developed by xAI and plugged into X proves to be a prime example of this development. Grok serves as the central topic in India's digital landscape today due to its analysis of political leaders such as Prime Minister Narendra Modi and its interaction with right-wing political themes.

Grok operates as an AI chatbot that handles queries and produces responses using publicly available information while maintaining a direct and informal communication style. Through integration into X users can ask questions through posts while participating in conversations and expanding discussions. Grok stands apart in digital discourse because its lack of filtering allows for raw responses unlike traditional AI models that rely on heavy filtering. The AI tool, Grok, which xAI developed and integrated into X began examining Indian politics through its analysis of Prime Minister Narendra Modi. Grok identified Narendra Modi as India's most communal politician on March 16, 2025, pointing to his association with Hindu nationalist movements, his role during the 2002 Gujarat riots, and his inflammatory 2024 comments about Muslims being "infiltrators" which triggered global criticism.

The analysis pointed out that Prime Minister Modi has conducted only a single press conference since 2014 which happened in 2019 where Home Minister Amit Shah was the main speaker. Grok's fact-based responses have established it as an influential disruptor in political commentary.

Implications for AI and Politics

Grok's entry into Indian politics prompts serious debates about how artificial intelligence influences political communication. The platform delivers fact-based answers which create transparency while fighting against misinformation. Through this case study tech students learn about AI's transformative ability to challenge power dynamics along with the importance of establishing ethical standards to avoid potential misuse. The comparison between Grok and other AI models such as Google's Gemini reveals the fine line AI needs to maintain because Gemini also received criticism for political statements.

Puzzle Time!!

The Timekeeper's Labyrinth

You find yourself in The Timekeeper's Labyrinth, a place where time itself folds and twists. Every room is connected to multiple other rooms, but they are not arranged linearly. Each room contains a clock and a door.
The clock in each room shows a different time, but they are not random; they follow a pattern.
You can only move to rooms where the time displayed on the clock is a minute later or a minute earlier than your current room.
Your goal is to reach the room where the clock shows 12:00, where the Timekeeper himself awaits with all the answers.
The catch?
You start in a room where the clock shows 00:00.
The labyrinth is infinite, with rooms stretching endlessly in all directions.
Each room has a unique identifier corresponding to the time displayed on its clock (e.g., "03:15" or "10:47").
You cannot go backward to the same room you came from unless you first visit at least two other rooms.

The Puzzle

What algorithmic strategy would you use to reach 12:00 as efficiently as possible?

Editor's Note

Thank you for taking the time to read this month's edition of our campus newsletter. We appreciate your continued support and involvement in our school community. As always, our goal is to keep you informed, engaged, and connected with all that's happening on campus.

If you have any feedback, suggestions, or stories to share for future editions, please feel free to reach out.
We look forward to another exciting month ahead!

Enjoy the Read!

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