

2024-2025

AUROLA

SOCIETY OF AUTOMOTIVE ENGINEERS
DEPARTMENT OF MECHANICAL ENGINEERING



DRIVING INNOVATION & ENGINEERING EXCELLENCE
THE OFFICIAL SAE JMI MAGAZINE!

MESSAGE FROM THE HON'BLE VICE CHANCELLOR

It is both a significant honor and a profound privilege to have been given the responsibility of leading Jamia Millia Islamia. The university represents a harmonious blend of traditional values and contemporary aspirations rooted in nationalism. Its illustrious heritage provides a continuous source of inspiration and will remain a guiding light for both current and future generations. I firmly believe that education empowers individuals by revealing their latent talents and providing them with the knowledge and skills necessary to address challenges. It acts as a transformative force that transcends barriers, allowing us to liberate ourselves and pursue our ambitions.



Indeed, the landscape of higher education globally has experienced considerable changes in both approach and scope. In a similar vein, higher education in India has effectively adapted to international demands, with institutions preparing to meet global challenges by utilizing the latest educational technologies. The transition towards interdisciplinary studies, research-focused and interactive learning, along with the integration of technology, particularly Artificial Intelligence, has not only broadened opportunities but also presented various challenges. India is currently at a crucial juncture, with a significant number of young people engaged in higher education. In this ever-evolving world, the primary focus must be on creating a dynamic and optimized platform to enhance the quality of knowledge while bridging the gap between academia and industry.

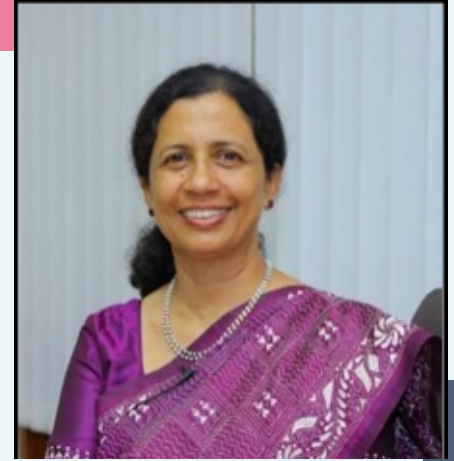
I take great pride in the abundance of dedicated and committed faculty members and administrative staff at the university. I place my unwavering trust in them and encourage their efforts to advance the initiatives of the Hon'ble Prime Minister. I have no doubt that Jamia Millia Islamia shall emerge as a model central university towards the implementation of NEP 2020 in realizing the objectives of Aatmnirbhar Bharat through connecting the essence of India's traditional knowledge with the contemporaneity.

Students and researchers represent invaluable assets to any academic institution. Their motivations and attitude are essential not only to the scholarly environment of the university but also to the aspirations of our cherished nation. The integration of diversity and plurality serves as the lifeblood of the institution, fostering a strong connection between alumni and current students. As the Vice-Chancellor of this prestigious university, I wholeheartedly support both current and prospective students in their pursuit of meaningful educational practices. I take this opportunity to urge the young and passionate minds to direct their energy towards the acquisition, assimilation, and dissemination of knowledge. Pragmatism of education that is 'Abeunt studia in mores' (Studies pass into manners/character) should be the guiding force for the students in their pursuit of knowledge.

-PROF. MAZHAR ASIF

MESSAGE FROM THE DEAN FACULTY OF ENGINEERING & TECHNOLOGY, JMI

Faculty of Engineering & Technology, Jamia Millia Islamia, established in 1985, has distinguished itself as a leading knowledge hub for technical minds. With its bright students from across the country, able Faculty members and up-to-date research infrastructure, the Faculty of Engineering & Technology has been able to produce excellent graduates for the service of the Nation. Our graduates are gainfully employed in Government services, reputed corporate houses and highly ranked educational Institutions globally.



The FET has around 140 faculty members who are engaged in research, in emerging areas of Smart grid, Deep learning, Artificial Intelligence, Advanced Manufacturing, Smart materials, 5G communications, Geotechnical and Environmental Engineering, etc, and are carrying out many research projects & consultancies in these areas. This gives the students, a glimpse of the emerging areas, coupled with regular revision of the curriculum in consultation with industry experts, alumni and academicians makes the students Industry ready.

At Jamia Millia Islamia, it is our endeavour to develop the students as rounded individuals and all efforts are made to ensure participation of the students in co-curricular activities on a regular basis. The campus has the student chapters of reputed international societies such as IEEE, ASME, ASCE, SAE, TRS, ISTE etc. Students are encouraged to excel in extracurricular activities.

I welcome you all to the Faculty of Engineering & Technology and wish you all the very best.

-PROF. MINI SHAJI THOMAS

A NOTE OF ENCOURAGEMENT: MESSAGE FROM THE HOD

Welcome to the Department of Mechanical Engineering, Faculty of Engineering and Technology, Jamia Millia Islamia, New Delhi. The Department started its journey in the year 1985 and since its inception, it has not only developed its infrastructure but has also strengthened its academic, research and outreach activities. Our vision is ***“To establish the Department as a hub of quality education, research with innovation and recognition at National and International level.”*** The required core values of knowledge, character building, integrity & transparency, teamwork, execution with passion, continuous improvement and student-centric learning are all closely integrated into our academic programs.



Academic curriculum of the Department primarily aims at providing technical knowledge to the students, enhancing problem formulating, analyzing and solving skills, promoting ethical and moral values and innovating new products and technologies. Our syllabi are dynamic in nature and course contents are periodically updated in view of all around technological developments and need of the hour. Apart from curriculum-based studies, the emphasis is made on the promotion of innovative projects, interaction with industries, soft skill & personality development, co-curricular and extra-curricular activities. Currently, the Department is offering Undergraduate (B.Tech. Mechanical Engg.), Postgraduate M. Tech (Production & Industrial Engg., Machine Design and Thermal Engg,) and Doctorate Program (Ph.D.) in Mechanical engineering, Currently, a large number of students are enrolled in the doctoral program pursuing cutting edge research in different knowledge domains of Mechanical Engineering to prepare them to carry out research and development activities at the organizations they are associated with. The Department provides a conducive environment to encourage & promote research activities so as to make its teaching-learning process effective and efficient. The various programs offered by the Department facilitate lifelong learning & training for the benefits of the society.

The Department has active and vibrant chapters of various professional societies such as American Society of Mechanical Engineers (ASME), Society of Automotive Engineers (SAE) and The Robotics Society (TRS) etc. which provides a world class platform to the students for organizing, participating and developing technical, engineering and innovative ideas. This helps in grooming a holistic personality of the students to take up future challenges. The Department takes all necessary measures to quickly respond to the rapid technological advancement and strives hard to grow and become a renowned teaching-learning centre to prepare its students efficient and effective in contributing to the society and the nation. The Department is committed to produce Mechanical engineers who can serve the society and Nation to the best of their capabilities.

-PROF. ZULQUERNAIN MALLICK

GUIDANCE AND INSIGHT

MESSAGE FROM OUR FACULTY ADVISORS

SAE JMI has always been a platform where passion meets innovation, and this magazine is a reflection of the dedication and ingenuity of our students. It is truly inspiring to witness their commitment to learning, experimenting, and pushing the boundaries of engineering.

As you turn these pages, I hope you find inspiration, new ideas, and the motivation to keep exploring. Keep striving, keep innovating, and most importantly, keep believing in your potential. The future of engineering lies in your hands, and I am confident you will shape it beautifully.



-PROF. SABAH KHAN



It is with great pride that I present this edition of the SAE JMI official magazine, a reflection of the dedication, innovation, and technical excellence of our students. SAE JMI has always been a hub for aspiring engineers, fostering creativity and collaboration in the field of mobility and engineering design. I extend my heartfelt appreciation to the entire team for their unwavering commitment and enthusiasm. May this magazine inspire many more students to push the boundaries of knowledge and contribute meaningfully to the ever-evolving world of automotive and aerospace engineering.

-DR. MOHD JAVAID

A MESSAGE OF LEADERSHIP FROM THE DESK OF OUR PRESIDENT

As the President of SAE, I proudly say that SAE is more than just a technical society—it's a family that shapes students into industry-ready professionals, problem solvers, and future leaders. Beyond equations and machines, SAE offers hands-on experience in innovation and teamwork, from designing vehicles for BAJA and SUPRA to working on automation and robotics. It's where late-night brainstorming turns into lifelong friendships, seniors mentor juniors, and setbacks become stepping stones to success. Whether competing in national events, collaborating on research, or sharing a laugh in the workshop, SAE fosters resilience, passion, and growth. Here, we don't just build machines; we build engineers, leaders, and innovators.

– **ZEESHAN HASHMI**



LEADING WITH PURPOSE

A NOTE FROM THE VICE PRESIDENT

I have been a dedicated member of this esteemed society since my first year of college, and I can confidently say that I have always aspired to lead it and contribute to its growth. . From organising events to interacting with people to being the face of the society, I've always felt connected. Over the past four years, this society has been my safe space, where I have found both inspiration and purpose. It has always felt like my own, and I have wholeheartedly enjoyed working for its success. From assisting my seniors in my early years to becoming a senior who actively supports and guides juniors, every moment spent here has been truly fulfilling. I still can't believe that my tenure of being the Vice President is going to end. Will miss it!!

– **FIZA JAMAL**



SAE INTERNATIONAL

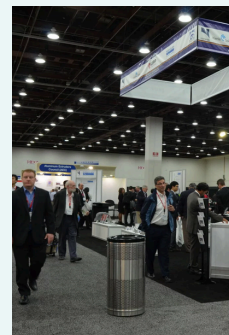
SAE International, formerly known as the **Society of Automotive Engineers**, is a global professional association and standards organization dedicated to advancing mobility engineering across various industries, including automotive, aerospace, and commercial vehicles. Established in 1905, SAE has grown from its initial 30 members—among them notable figures like *Andrew L. Riker, the first president, and Henry Ford, the first vice president*—to a robust community of over **138,000 engineers and technical experts** worldwide.

MISSION

SAE International's mission is to **lead and support the global mobility community** by providing innovative solutions, developing industry standards, and offering professional development opportunities. By fostering collaboration and knowledge sharing, *SAE empowers engineers and technical professionals* across various industries, including automotive, aerospace, and commercial vehicles. The organization is dedicated to advancing mobility through education, research, and the creation of safe, efficient, and sustainable technologies that enhance the movement of people and goods worldwide.

VISION

SAE International **envisions a future where mobility systems are safer, more sustainable, and universally accessible**. The organization strives to be at the forefront of technological advancements in transportation, from electric and autonomous vehicles to clean energy solutions. *SAE is committed to fostering a diverse and inclusive workforce, encouraging continuous learning, and empowering the next generation of engineers to address the challenges of modern mobility*. Through its initiatives, SAE aims to drive innovations that improve the quality of life, protect the environment, and contribute to a more connected and sustainable world.



SAE INTERNATIONAL

GLOBAL PRESENCE

SAE International boasts a powerful global presence, with over 138,000 members spanning more than 97 countries. Through local chapters, conferences, and events, the organization fosters collaboration and knowledge exchange among engineers, technical experts, and industry leaders from diverse backgrounds. This global network enables SAE to drive innovation in mobility across automotive, aerospace, and commercial vehicle industries. Its educational programs, including student competitions like Formula SAE, engage the next generation of engineers, providing hands-on experience and shaping future leaders in the field.



KEY ACTIVITIES AND CONTRIBUTIONS

Standards Development: SAE plays a pivotal role in developing industry standards that ensure safety, reliability, and efficiency in mobility systems. These standards cover a broad spectrum, from vehicle performance metrics to environmental considerations.

Educational Programs: Through initiatives like the *SAE Foundation*, the organization supports STEM education, aiming to inspire and prepare the next generation of engineers. Programs such as *A World In Motion* and the *Collegiate Design Series* are instrumental in achieving this goal.

Professional Development: SAE offers a range of professional development opportunities, including *certifications, workshops, and conferences*, to help members stay abreast of technological advancements and industry trends.

Publications: The organization publishes several renowned magazines, such as *Automotive Engineering International*, *Aerospace Engineering*, and *Off Highway Engineering*, providing insights into the latest developments in mobility engineering.

SAE INTERNATIONAL

BREAKING NEW GROUND: RECENT INITIATIVES BY SAE INTERNATIONAL

1. Hydrogen and Alternative Fuels Summit

In May 2024, SAE International hosted the second annual Hydrogen and Alternative Fuels Summit. This free two-day event addressed current and future alternative fuels markets, featuring sessions on liquid hydrogen fuel systems, hydrogen for internal combustion engines, and clean hydrogen as an alternative fuel for sustainable mobility.

2. Launch of Sustainable Mobility Solutions Group

At the London EV Show in 2022, SAE International announced the formation of Sustainable Mobility Solutions. This innovation group focuses on advancing sustainable mobility through electric vehicle (EV) publications and partnerships with workforce training organizations, aiming to support the growth of the EV industry.

3. SAE International Showcase

In early 2025, SAE International hosted the SAE International Showcase, an event designed to inform attendees about new products and initiatives supporting emerging technologies such as electrification, workforce development, and additive manufacturing. The showcase provided insights into SAE's efforts to support mobility professionals in these dynamic fields.

4. A World In Motion JetToy Competition

On February 28, 2025, SAE International's A World In Motion® program held the JetToy Competition, engaging nearly 300 students from schools in Georgia and Alabama. The event inspired future innovators by challenging students to design and build jet-propelled toys, fostering interest in STEM fields.

5. Development of 'Plug and Charge' Protocol for EV Charging

In December 2024, SAE International, in collaboration with automakers, EV charging operators, and government entities, announced the upcoming introduction of a universal 'Plug and Charge' protocol. Scheduled for rollout in 2025, this initiative aims to simplify the EV charging process by automating authentication and payment, enhancing convenience for EV owners and promoting widespread EV adoption.



SAE INDIA

SAEINDIA, the Indian chapter of the **Society of Automotive Engineers (SAE)**, plays a pivotal role in shaping the future of the mobility sector in India. Established with the vision of fostering innovation, collaboration, and the development of world-class engineering talent, *SAEINDIA is committed to empowering both professionals and students in the automotive and mobility industries.* The organization provides a platform for individuals to share knowledge, develop technical expertise, and engage with industry leaders to drive advancements in technology and sustainable mobility solutions. SAEINDIA organizes various events, conferences, and competitions, including prominent ones like **SUPRA SAEINDIA** and **BAJA SAEINDIA**, which bring together students and professionals to engage in hands-on learning and showcase innovations. With its extensive network and collaborations, SAEINDIA continues to play a vital role in the *professional growth of the Indian automotive and engineering sectors, connecting individuals and organizations from across the world.*

MISSION

SAEINDIA aims to be **the leading technical body for mobility engineers in India, providing knowledge, skill development, and professional growth opportunities.** The organization focuses on advancing the automotive and mobility sectors through educational programs, technical standards, and collaboration with industry and government bodies. SAEINDIA strives to influence policies and foster innovation in transportation technologies, ensuring a sustainable and future-ready mobility ecosystem.

VISION

SAEINDIA envisions becoming a **global leader in mobility engineering, driving innovation and sustainability in India's automotive sector.** The organization is committed to shaping the future of transportation through collaboration, cutting-edge technologies, and the development of skilled engineers, contributing to a safer, smarter, and more sustainable mobility landscape.



SAE INDIA

DRIVING INNOVATION: LATEST DEVELOPMENTS FROM SAE INDIA

- **SUPRA SAEINDIA 2025:** Scheduled from *August 13 to 16, 2025*, at the Buddh International Circuit in Greater Noida, this event will bring together approximately *1,800 engineering students from 60 teams across 14 states*. It serves as a platform for students to showcase their innovations in internal combustion engine (ICE) and electric formula vehicles.
- **BAJA SAEINDIA 2025:** Held at the *NATRAX facility*, this event features multiple categories, including hydrogen-CNG powered vehicles, emphasizing eco-friendly innovations and alternative fuels. It plays a crucial role in promoting sustainable mobility solutions and enhancing the skills of engineering students.
- **eBAJA SAEINDIA 2025:** *The four-day event concluded recently in Hyderabad*, witnessing record participation with nearly *85 teams*. It showcased the latest developments in electric vehicles and innovations, highlighting the organization's commitment to advancing electric mobility.
- **Automotive Leadership India Summit:** In collaboration with UKi Media & Events, SAEINDIA is organizing this two-day conference at the *Automotive Testing Expo India*, scheduled for *April 8-10, 2025, in Chennai*. The summit aims to bring together industry leaders to discuss advancements and future trends in automotive technology.
- **OffTeCon 2025:** This conference will convene professionals from the off-highway industry to celebrate technological breakthroughs, engage in critical discussions, and share practical solutions. It offers insights into modern and future off-highway technologies and opportunities.
- **SAEINDIA's Electric Vehicle (EV) Development Programs:** SAEINDIA continues to strengthen its focus on electric vehicle development, launching *new training programs and workshops to promote EV technologies*. SAEINDIA is playing a pivotal role in preparing India's automotive workforce for the global shift towards cleaner, greener mobility solutions.
- **SAEINDIA Connect 2025:** SAEINDIA is also planning SAEINDIA Connect 2025, a *national-level conference focused on fostering collaboration between academia, industry, and government*.



SAE JMI



SAE JMI, the **Society of Automotive Engineers** chapter at **Jamia Millia Islamia (JMI)** in New Delhi, India, is a dynamic student organization dedicated to fostering innovation, technical expertise, and holistic development among engineering students. Established in 2018, SAE JMI provides a platform for students to engage in *live projects, workshops, industrial visits, and webinars*, bridging the gap between academic knowledge and practical application.

MISSION AND OBJECTIVES

SAE JMI aims to connect students with their inner tech expert, offering opportunities to explore engineering concepts hands-on. The chapter focuses on organizing events that promote creative engineering ideas, contributing to the holistic personality development of its members.

ACTIVITIES AND ENGAGEMENTS

The chapter actively participates in various activities, including organizing workshops, industrial visits, and online webinars. These initiatives are designed to enhance technical skills and provide real-world engineering experiences. SAE JMI also engages in social initiatives, such as supporting medical treatments for community members in need.

ONLINE PRESENCE

SAE JMI maintains an active online presence to keep members and the broader community informed about its activities and initiatives. The chapter's Instagram account showcases events, innovations, and engaging activities, reflecting its vibrant community. Additionally, it also features workshops and events, providing valuable content for viewers interested in engineering and technology.

MEET THE TEAM

2024-2025



VISHESH KAUL
GENERAL SECRETARY



ALI INAM
TREASURER



ZOYA IQBAL
PROGRAM CHAIR



MISHKAT NIZAMI
TECHNICAL HEAD



DOHA KHURSHID
GRAPHICS HEAD



SHAKEELA ANEES KHAN
PR HEAD



MUSHARRAF
HR HEAD



MOHAMMAD AZEEM
PUBLICITY HEAD

SAE JMI Events



A YEAR OF INNOVATION AND SUCCESS

SAE JMI hosted a series of engaging events throughout the year, keeping both members and non-members actively involved. From *workshops on SolidWorks and ANSYS to case study challenges*, these initiatives offered valuable hands-on experiences that enhanced technical skills and fostered professional growth.

The year concluded with the **grand success of our technical fest, Celestra**. The fest, filled with competitions, workshops, and exhibitions, showcased the talent and creativity of our students, making it a fitting end to a year of innovation and achievement.

In an extraordinary initiative aimed at bridging the gap between theoretical knowledge and practical application, SAE JMI recently conducted a comprehensive **two-month workshop on SolidWorks and ANSYS**. Spearheaded by two of our dedicated final-year students, **Aatif and Gulfam**, this workshop provided students with an in-depth understanding of two of the most widely used software tools in the engineering world—*SolidWorks for 3D modeling and ANSYS for simulation and analysis*.



WORKSHOP ON SOLID WORKS AND ANSYS

The SolidWorks and ANSYS workshop, led by Aatif and Gulfam, was a resounding success. Over two months, *participants gained **valuable hands-on experience in 3D modeling and simulation**, crucial for careers in engineering*. The workshop saw high participation, with students from various branches of engineering engaging actively in the sessions. By providing practical knowledge of *industry-standard tools*, *the workshop enhanced students' technical skills*, preparing them for real-world challenges and boosting their employability in the automotive and manufacturing sectors.



SAE JMI organized a **Technical Quiz and Case Study Competition** centered around the pressing issue of electric vehicle (EV) **affordability** —challenged participants to think strategically about the future of sustainable mobility. The Technical Quiz tested participants' knowledge on a wide range of topics, including *EV technology, battery innovations, government policies, and global emission targets*. The fast-paced rounds ignited a healthy spirit of competition, as teams raced against time to answer questions that tested their understanding of the rapidly evolving EV landscape.



TECHNICAL QUIZ & CASE STUDY COMPETITION

The Case Study Competition provided students with the opportunity to delve deeper into the complexities of EV affordability. *Teams analyzed how economic factors, like high battery costs and the lack of widespread charging infrastructure, hinder the adoption of EVs.* The competition successfully stimulated fresh perspectives and ideas about how the automotive industry can navigate the challenges of sustainability and profitability in the EV sector. By tackling real-world issues, participants not only gained deeper insights into the challenges of the EV market but also contributed to potential solutions that could drive the future of affordable, sustainable mobility.



A D D C

Autonomous Drone Development Competition 2024

Innovation, precision and technical expertise—these were the driving forces behind the SAE JMI team’s remarkable participation in the Autonomous Drone Development Competition. Under the able leadership of **Vikas (Team Captain) and supported by Vivek Kumar Das, Amaan Hasan Farooqi, Mohammad Sahil Khan, Budhil Nigam and Junaid Alam**, the team showcased their skills in designing and developing an intelligent, fully autonomous drone capable of performing complex aerial tasks with efficiency and accuracy.

Participating in this prestigious competition was not just about technical expertise but also about teamwork, resilience, and a shared passion for aerospace innovation. The SAE JMI team’s dedication and perseverance paid off, earning them accolades for their groundbreaking work in autonomous flight technology. This achievement reinforces SAE JMI’s commitment to fostering engineering excellence and pushing the boundaries of technological advancements. The competition challenged participants to engineer a drone that could navigate autonomously, recognize obstacles, and complete a series of predefined tasks without manual intervention.

As the team continues to refine their drone systems, their journey serves as an inspiration for future engineers to dream big and engineer the impossible. **Congratulations to the team for their outstanding performance and for making SAE JMI proud!**



CELESTRA '25

THE ANNUAL TECHNICAL FEST

On **19th February 2024**, SAE JMI hosted its highly anticipated **Annual Technical Festival, Celestra**, which turned out to be an overwhelming success. The event attracted a massive crowd of students, faculty, and industry professionals, making it one of the most engaging and dynamic festivals in recent years. With over **15 exciting competitions** spread across various domains, Celestra showcased the creativity, talent, and innovative spirit of our students.

The event featured a diverse range of competitions, from intellectual challenges like **Technical Debates and Quizzes to creative showcases such as CAD Modeling and the ever-popular Shark Tank-Style Startup Pitch Presentations**. Participants demonstrated their skills in presenting innovative business ideas to a panel of judges, just like the real-life entrepreneurs on the Shark Tank show. The festival also embraced the lighter side of competition with fun games like **Squid Game, BGMI and Mini Militia**, which brought an exciting and energetic vibe to the event.



CELESTRA '25

THE ANNUAL TECHNICAL FEST

One of the highlights of the festival was the presence of **student-run stalls**, where budding entrepreneurs from within the university showcased their startups and engaged with attendees. These stalls provided a platform for students to promote their innovative ideas and interact with the crowd, sparking conversations about the future of entrepreneurship and technology.

The action-packed day culminated in the grand finale, **Jamia's Got Latent**, a talent showcase where young minds displayed their diverse abilities, from *music and dance to stand-up comedy and more*. The performances captivated the audience, bringing a perfect end to a day filled with energy, enthusiasm, and engagement.

Celestra 2024 not only highlighted the **technical skills of our students but also promoted creativity, innovation, and teamwork**, creating an environment where students could explore, learn, and connect. The success of the event reflects SAE JMI's commitment to fostering a platform for students to shine, and it left everyone eagerly looking forward to the next edition.



On 20th March, **SAE JMI**, in collaboration with **ASME JMI**, hosted a memorable **Daawat-e-Iftaar**, bringing together students, faculty, and society members in an atmosphere of unity and gratitude. This special gathering was not just a celebration of faith but also a testament to the spirit of togetherness and camaraderie that defines our technical societies. The overwhelming participation and the seamless organization of the Daawat-e-Iftaar highlighted the dedication and teamwork of the members. It was heartening to see how an event centered around faith also became a platform for strengthening professional and personal connections.



DAAWAT-E-IFTAAR 2025

Held in a warm and welcoming setting, the event provided an opportunity for members to reflect on the achievements of the year while embracing the values of generosity and community bonding. Attendees from diverse backgrounds came together to break their fast, fostering a sense of inclusivity and mutual respect. ***The evening was filled with heartfelt conversations, laughter, and moments of spiritual reflection***, making it a truly enriching experience for everyone present.

May the spirit of togetherness continue to guide us in all our future endeavors!





THANK YOU

As we close this edition, let's carry forward the spirit of innovation, teamwork and perseverance. The road ahead is filled with endless possibilities—keep learning, keep building and keep soaring!

- Team SAE JMI

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Bringing this magazine to life has been an incredible journey, filled with stories of innovation, dedication, and perseverance. I hope these pages inspire and resonate with you as much as they did with me while curating them.

*-MISHKAT NIZAMI
EDITOR*

