VOLUME 3 ISSUE 3

MILES TO NAUTS

Feb 2025

KUMARAGURU college of technology
character is life

AERONAUTICAL ENGINEERING ASSOCIATION AEA

Aeromodeling Club
Kumaraguru College of Technology

INNOVATION
Aircraft Simulator Workshop

HISTORY & FREEDOM
Wings of Freedom

AEROSPACE TRAINING
Aeromodelling and Drone Training Camp for NCC Cadets

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MILES TO NAUTS

February 2 0 2 5

Dear Readers,

We are ecstatic and privileged to have made our magazine, "MILES TO NAUTS" reach your hands. We have worked hard, and we've also had some incredible adventures along the way. Our magazine is the brainchild of students who are passionate about aerospace and dream of carving out a career in this challenging yet fascinating field. The magazine seeks to make a link between what people learn and what they practice in daily lives. We have put together facts, experiences, and information in this issue that will benefit anyone who flips the pages. The magazine aims to quench the intellectual thirst of anyone who is trying to constantly educate themselves and to motivate them to strive towards excellence. We hope and believe that you would be as thrilled and excited as we were while working on this magazine and will constantly render your support through your constructive criticism and continued readership.

Hope to see you soon,
Editorial Team, Miles to Nauts .

AEROMODELLING AND DRONE TRAINING CAMP FOR NCC CADETS

The Department Association of Aeronautical Engineering organized a 10-day drone training camp on February 1, 2025. The camp provided theoretical knowledge and hands-on experience in drone operation, covering topics such as aerodynamics, regulations, flight controls, mission-based training, and maintenance. Students learned manual and automated flight techniques, obstacle avoidance, emergency handling, and real-world applications in agriculture, surveillance, and mapping. The camp concluded with assessments and certifications, equipping cadets with essential UAV skills and inspiring further expertise in drone technology.

AIRCRAFT SIMULATOR WORKSHOP: BRIDGING THEORY AND PRACTICE

The Department Association of Aeronautical Engineering conducted an Aircraft Simulator Workshop on December 27, 2024 and led by Mr. Ramesh Babu from Ray Dynamics, the session introduced second-year aeronautical engineering students to the fundamentals of aircraft simulation and its role in aerospace engineering. The workshop covered theoretical concepts such as flight dynamics, control system modeling, and industry-standard simulation software. The practical session included a live demonstration of aircraft simulations, allowing students to interact with software, modify flight parameters, and observe real-time changes. The event provided valuable insights into aerospace simulation, career opportunities, and hands-on experience, leaving students eager to explore advanced simulation techniques in future sessions

IIT Dreams Realized: Alumni Talk on GATE Success

The Department Association of Aeronautical Engineering hosted an inspiring alumni talk, "IIT Dreams Realized," on December 19, 2024, featuring Mr. Haribalan S, an alumnus currently pursuing M.Tech in Aerospace Engineering at IIT Bombay. The session aimed to guide students on GATE preparation, effective study techniques, and time management strategies to secure admission to premier IITs. Mr. Haribalan emphasized conceptual learning, structured revision plans, and problem-solving skills while sharing his personal journey and challenges. The interactive session allowed students to clarify doubts and gain resourceful insights. The event concluded with a vote of thanks, leaving attendees motivated and better equipped to achieve their IIT aspiration.

Additionally, he discussed research opportunities, career prospects after IIT, and the role of networking in academic and professional growth. The interactive session allowed students to clarify doubts and gain resourceful insights. The event concluded with a vote of thanks, leaving students motivated and better equipped to achieve their IIT aspirations.

Guest Lecture on Aeroelasticity

On February 12, 2025, the Department Association of Aeronautical Engineering hosted a guest lecture by Mr. Veeramanikandan. The session focused on aeroelasticity, covering key concepts such as flutter, divergence, and control reversal, emphasizing their impact on aircraft stability and safety. Real-world case studies, including the Tacoma Narrows Bridge collapse, were discussed to illustrate aeroelastic risks. The lecture highlighted preventive measures like wind tunnel testing, computational simulations, and structural modifications. It provided valuable insights into aircraft design and encouraged students to explore further research in aerospace engineering.

Students engaged in interactive discussions, gaining clarity on complex concepts and practical applications in aircraft and spacecraft design. The lecture fostered a deeper understanding of the challenges in aerospace engineering, inspiring students to pursue specialized studies and innovative solutions in the field.

GATE TO IIT

The "GATE to IIT" session, conducted by the Department Association of Aeronautical Engineering on 24th September 2024 via MS Teams, was designed to provide students with a roadmap for successful GATE preparation and career progression in aerospace engineering. The session featured Kishore B, an alumnus from the Batch 2020-2024, currently pursuing an M.Tech in Aerospace Engineering at IIT Madras. Kishore shared valuable insights into his journey of cracking GATE and securing a place at one of India's top institutions, IIT Madras. He discussed preparation strategies, examination techniques, and post-GATE opportunities, offering students practical advice and a clear path to follow for academic and professional success. The session was divided into two key phases: Phase 1 focused on effective GATE preparation, including creating a well-structured study plan, balancing self- study with coaching, managing time, mastering key subjects like aerodynamics and propulsion, and taking mock tests.

Phase 2 highlighted career opportunities after GATE, including pathways in higher education, research roles at ISRO and DRDO, public sector jobs, and international positions. Kishore encouraged reattempting GATE or exploring private sector options for those facing initial setbacks. An interactive Q&A addressed student concerns about motivation, study balance, and exam-day stress. The session concluded with gratitude, leaving students inspired and equipped with a clear action plan. Kishore's motivational approach emphasized perseverance, strategic planning, and continuous learning, serving as a valuable resource for aspiring aerospace engineers.

THE MISSILE MAN FEST'2024

The Missile Man Fest, held on 15th October 2024 at E Block 208, was a commemoration to honor the legacy of Dr. A.P.J. Abdul Kalam, the "Missile Man of India," recognizing his immense contributions to science, education, and leadership. The event featured guest speakers, including Mr. Thaariq Ahmad, Co- founder and Head of Mechanical Systems at Next Leap Aeronautics, who shared his insights into aerospace engineering and entrepreneurship. Dr. S. Rajagopal, Scientist G and Program Director of UAV at ADE DRDO, delivered a virtual talk on the revolution in UAV technology and its significance in national security. The event successfully connected students with industry experts through engaging discussions, workshops, and live demonstrations, fostering a spirit of innovation and inspiring the next generation of thinkers. The Water Rocketry event, held in the afternoon on 15th October 2024 at the ground near the Civil Block, was a hands-on activity that blended creativity, teamwork, and physics. Participants built and launched water rockets using simple materials, experimenting with water pressure and launch angles to optimize flight performance. The event highlighted engineering skills and scientific principles in action, with Team 5 (Jeni, Sriram) securing first place and Team 6 (Martin, Shafana) coming in second. The Designathon, held on 16th October 2024 in E212, focused on the theme "Payload for the Drone." Participants developed payload systems for various drone applications, such as logistics, surveillance, and agriculture. The competition encouraged participants to balance weight optimization, aerodynamics, and modular flexibility to enhance drone performance. Team 1 (Sriram) won first place for their innovative design.

The Quiz Competition, also held on 16th October 2024 in E212, was a high-energy intellectual contest that tested participants' knowledge on science, technology, and Dr. A.P.J. Abdul Kalam's legacy. Teams competed in multiple rounds covering aerospace, missile technology, defense advancements, and space exploration, with various formats like rapid-fire rounds, visual-based questions, and buzzer challenges. The event promoted curiosity and a deeper appreciation for science and innovation, inspired by Dr. Kalam's contributions.

AIRCRAFT SIMULATION

The Department Association of Aeronautical Engineering proudly unveiled its state-of-the-art flight simulator, marking a major milestone in simulation-based pilot training and aeronautical research. The event took place on 04/02/2025 at the E Block Simulation Room and was coordinated by Sunantha Jeyasurya. It saw the participation of prominent figures from the aviation industry, faculty members, and students, all gathered to celebrate this technological advancement.

The ceremony commenced with a welcome address, acknowledging the dedicated efforts that led to the successful setup of the flight simulator. The inauguration included a ribbon-cutting ceremony to unveil the new facility, followed by a speech from the chief guest on the importance of flight simulation in modern aviation. A presentation then showcased the real-time capabilities and operational functions of the simulator.

In a technical presentation, the engineering and technology behind the flight simulator were discussed, with a focus on its impact on pilot training, mission planning, and aircraft safety. The interactive Q&A session allowed aviation experts, simulator engineers, faculty members, and attendees to exchange ideas.

Attendees also had the opportunity to engage in hands-on experiences, participating in realistic flight scenarios through interactive simulations. Students and educators were involved in mock flight exercises, enhancing their practical understanding, while feedback was collected to refine training methods and explore future improvements.

The successful commissioning of the flight simulator marks a new era in aerospace education, enabling students to bridge theory with hands-on experience. This facility will serve as a hub for research, training, and innovation, advancing aeronautical sciences. With the growing importance of simulation technology in aviation, this initiative aims to enhance the skills of future aerospace professionals.

AERIAL TRIBUTE:

Honoring the Guardians of the Skies

The roar of fighter jets, the resilience of air warriors, and the indomitable spirit of the Indian Air Force (IAF) were celebrated in Aerial Tribute: Celebrating Valor in October 2024. This event was a heartfelt homage to the gallant men and women who safeguard our skies, blending inspiration with intellectual engagement.

The highlight of the event was an electrifying session by an ex-Air Force personnel who transported the audience into the world of high- altitude operations, critical missions, and unwavering patriotism. His tales of courage, precision, and discipline struck a chord with aspiring aviators, offering an inside view of the rigorous life in the IAF. His words resonated deeply, reminding everyone of the sacrifices made by air warriors to uphold national security.

The competition was nothing short of thrilling, as participants exhibited remarkable knowledge and lightning-fast reflexes. After an intense contest, the top performers emerged victorious, earning well-deserved accolades. The event was a perfect blend of learning and excitement, leaving attendees inspired and with a renewed appreciation for India's aerial might.

Following this inspiring address, the event transitioned into a high-energy quiz competition structured into three riveting rounds. The first round tested participants on the history of the IAF, quizzing them on pivotal moments, technological advancements, and game-changing air operations. The second round turned up the heat with aircraft identification, where competitors had to recognize various fighter jets, helicopters, and transport planes used by the IAF. The final round paid tribute to the heroes of the Air Force, challenging participants to identify legendary commanders, war strategists, and valiant pilots whose contributions shaped the force into a formidable aerial power.

MASTERING THE SKIES AEROMODELLING AND DRONE TRAINING CAMP

February 2025 witnessed an extraordinary leap in aviation education with the Aeromodelling and Drone Training Camp. Over ten action- packed days, cadets were immersed in an advanced training program that took them from the basics of drone technology to complex aerial maneuvers, making them adept in modern UAV operations

The camp commenced with foundational sessions, introducing participants to the intricacies of aerodynamics, drone components, and flight principles. These theoretical lessons set the stage for the real excitement—the practical training. Participants were guided through pre-flight checks, manual and automated flight controls, and simulator-based exercises that replicated real-world flying conditions.

As the training intensified, cadets were introduced to autonomous flight modes, obstacle avoidance techniques, and emergency recovery procedures. The sessions on night flying and adverse weather operations tested their adaptability, preparing them for unpredictable scenarios. The latter half of the program focused on mission-based training, where cadets explored applications of drones in agriculture, surveillance, mapping, and aerial photography. They engaged in live mission exercises, developing coordination, teamwork, and strategic planning skills essential for real- world drone operations.

KAD'S 25

Sportsmanship Where Sportsmanship Meets Camaraderie.

Amidst the fast-paced academic schedule, January 2025 brought a much-needed break filled with energy, competition, and team spirit. KAD'S 2025 was more than just a sports event—it was a platform where students bonded, strategized, and celebrated team work through exhilarating matches of carrom, cricket, and badminton

The carrom tournament saw 20 teams battling it out in a series of intense rounds. As the competition progressed, precision and quick thinking determined the finalists, with each flick of the striker carrying immense weight.

Cricket fans were treated to an unforgettable showdown, with four teams—Jaguar, Sukhoi, Rafale, and Tejas—competing in a knockout format. The semi-finals delivered high drama, with one match going into a Super Over, amplifying the stakes. The final game was a fierce contest of skill and endurance, with strategic bowling and powerful batting displays making it an exhilarating watch.

Meanwhile, the badminton tournament featured a knockout bracket followed by a league-style final round. Agility, coordination, and sheer determination defined the matches, with the final two teams engaging in a gripping contest that showcased exceptional talent.

Beyond the trophies and titles, KAD'S 25 reinforced the importance of teamwork, resilience, and sportsmanship. It created an environment where seniors and juniors connected beyond academics, fostering relationships that would last long after the final whistle.

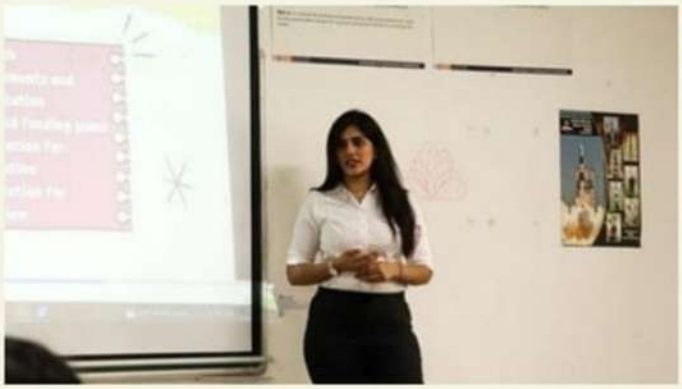
Wings of Freedom: A Tribute to Innovation & Patriotism:

The Wings of Freedom competition, hosted by the Department Association of Aeronautical Engineering on August 16, 2024, celebrated India's Independence Day by highlighting the nation's aerospace advancements. Students showcased their research and creativity through presentations on India's aerospace innovations, indigenous technology, and global defense role.

The event fostered patriotism, innovation, and research excellence, inspiring students to contribute to India's future in aviation and defense. The competition also featured interactive discussions and expert feedback, enhancing students' understanding of aerospace technology. Participants explored emerging trends, from space exploration to indigenous aircraft development, emphasizing self-reliance in defense. The event provided a platform for students to collaborate, exchange ideas, and refine their technical knowledge. Overall, it encouraged a spirit of innovation and national pride among future aerospace engineers.

IIT Alumna Inspires Future Space Engineers:

Ms. M. Krishna Priya, an IIT alumna and current MSc student in Astronautics and Space Engineering at Cranfield University, recently delivered an insightful talk on higher education opportunities in her field.



The session covered admission options, funding processes, research opportunities, and career paths in space engineering. Students actively engaged with Krishna Priya, gaining valuable advice on specializations and skill development. The event motivated students to pursue careers in space science and highlighted its importance.

The session also shed light on opportunities in the space industry and the significance of hands-on experience. Ms. Krishna Priya emphasized emerging trends, technical skills, and interdisciplinary knowledge.

Students were encouraged to stay updated, build networks, and seek mentorship. The discussion inspired them to pursue careers in space science with confidence.

MILES TO NAUTS

HOD's NOTE :

Dr. M SENTHIL KUMAR

I am delighted to note that the Students Association of Department of Aeronautical Engineering and the Aeromodelling Club have taken initiatives of releasing Department Technical Magazine "Miles to Nauts". The magazine will be platform for the students to present their findings, collection of technical information, current affairs in the field of Aeronautical, Aerospace and Allied Engineering. Releasing of magazine will be helpful in many ways such as dissemination of knowledge to all the students, networking , communication, leadership skills, updates on activities of the department etc. I wish the technical magazine should carry many more useful information beneficial to all the students and provide a new dimension of growth to the department.

STAFF COORDINATOR's NOTE :

Mr.DARSHAN KUMAR.J

Every dreamer is not necessarily a doer and every doer is not always a dreamer. Life gives us numerous chances and opportunities to begin fresh and flourish. These happy thoughts shall brighten up each mind reading the journal. Have fun combining intellect and writing, enjoy every moment of this journey.Best wishes for your new initiative.Let our journal reach from one mile to 1000s of nauts through your mighty words.Let this endeavour touch the sky with glory .

VISION OF THE INSTITUTE

The vision of the college is to become a technical university of International Standards through continuous improvement.

MISSION OF THE INSTITUTE

Kumaraguru College of Technology (KCT) is committed to providing quality Education and Training in Engineering and Technology to prepare students for life and work equipping them to contribute to the technological, economic and social development of India. The College pursues excellence in providing training to develop a sense of professional responsibility, social and cultural awareness and set students on the path to leadership.

VISION OF THE DEPARTMENT

To attain excellence and global reputation in Aeronautical Engineering Education and Research.

MISSION OF THE DEPARTMENT

- The department is committed to provide quality education in Aeronautical Engineering to students to build their career and do quality research and thus contribute to the field of Aviation and Aerospace.
- The department aims to prepare students for their higher studies and research to contribute to the advanced technological needs of Aeronautical engineering.
- Encourage faculty to update their knowledge and teaching-learning process through continuous learning.
- Undertake inter-disciplinary research to contribute and support the industry.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

The Program Educational Objectives of Aeronautical Engineering Undergraduate Program are to prepare the students:

I. To pursue a successful profession in leading organizations.

II. To pursue postgraduate degrees and conduct research at leading technological universities to contribute to the advancement in the field of Aviation and Aerospace industries.

III. To continue their professional development by utilizing educational and career building opportunities through their employer, educational institutions, or professional bodies.

PROGRAM OUTCOMES (POs)

Graduates of the Aeronautical Engineering Undergraduate Program should have the ability to:

PO 1: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO 2: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO 3: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO 4: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO 5: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO 6: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO 7: Understand the impact of professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO 8: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO 9: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO 10: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO 11: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO 12: Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSOs)

Graduates of the Aeronautical Engineering Undergraduate Program will have the ability to:

PSO 1: Apply concepts and principles of Aerodynamics, Aircraft Structures, Aircraft Propulsion, Aerospace Materials, UAV and Avionics to provide solutions to critical industrial problems.

PSO 2: Use the software packages in the design, manufacturing, testing and maintenance of aeronautical and aerospace-based components and systems