MECHATRONICS ENGINEERING

KUMARAGURU COLLEGE OF TECHNOLOGY
Character is life

MECHATRONICS ENGINEERING ASSOCIATION


Lab Facilities @ Dept.Of Mechatronics

Jun - Dec 2025

Newsletter

Note to Readers

We are pleased to present the Newsletter of the Department of Mechatronics Engineering and share it with all our stakeholders, whose continued support and encouragement remain invaluable. Following the declaration of lockdown, the department swiftly adapted its curriculum to ensure uninterrupted learning, in line with institutional guidelines and student needs.

From a faculty perspective, continuous efforts have been made to build a sustainable professional learning community, focused on improvement, innovation, and effective teaching strategies that help students achieve their full potential.

This newsletter highlights the events, webinars, conferences, and achievements of both students and faculty. We hope it serves as a source of inspiration and motivation for continued academic and professional growth. We congratulate the entire team for their dedicated efforts in bringing out this newsletter as an effective medium of communication.

Institutional Vision and Mission

Vision

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

Mission

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.

Department Vision and Mission

Vision

To achieve excel in academic and industrial automation research and innovative product development driven by mechatronics systems.

Mission

Impart the right blend of knowledge and skills to students and enable them to apply it in real- life situations.

Motivate the students towards interdisciplinary research to cater to the local and global needs.

Achieve innovation in developing industrial products with social responsibility.

PROGRAM EDUCATIONAL OBJECTIVES (PEO'S)

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

To develop innovative and sustainable products with multidisciplinary Engineering expertise.
To solve complex engineering problems by applying mechanical, electrical and computer knowledge and engage in lifelong learning in their profession
To work or pursue higher education in multicultural, multilingual and multinational environment with competent oral and written communication.
To lead and contribute in a team entrusted with professional, social and ethical responsibilities.

PROGRAM SPECIFIC OUTCOMES (PSO'S)

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

PSO1. Design and develop Mechatronics systems to solve the complex engineering problem by integrating electronics, mechanical and control systems.

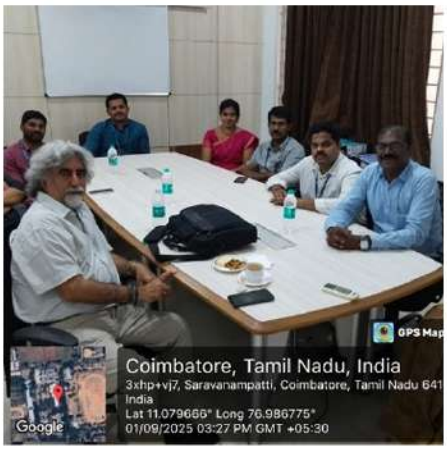
PSO2. Apply the engineering knowledge to conduct investigations of complex engineering problem related to instrumentation, control, automation, robotics and provide solutions.

PROGRAM OUTCOMES (PO'S)

01		
	Programme Outcomes Engineering Knowledge	Mapped Skills Core Technical Proficiency
02		
	Programme Outcomes Problem Analysis	Mapped Skills Analytical & Critical Thinking
03		
	Programme Outcomes Design/ Development of Solutions	Mapped Skills Design Thinking & Creative Problem Solving
04		
	Programme Outcomes Conduct Investigations of Complex Problems	Mapped Skills Research & Inquiry Skills
05		
	Programme Outcomes Modern Tool Usage	Mapped Skills Technological Proficiency
06		
	Programme Outcomes The Engineer and Society	Mapped Skills Societal Awareness

07		
	Programme Outcomes Environment and Sustainability	Mapped Skills Sustainability and Environmental Consciousness
08		
	Programme Outcomes Ethics	Mapped Skills Ethical Integrity and Professional Conduct
09		
	Programme Outcomes Individual and Teamwork	Mapped Skills Collaboration and Leadership
10		
	Programme Outcomes Collaboration and Leadership	Mapped Skills Communication Mastery
11		
	Programme Outcomes Project Management and Finance	Mapped Skills Strategic and Project Management
12		
	Programme Outcomes Lifelong Learning	Mapped Skills Adaptive Learning and Self-Development

What's Ahead



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Global Faculty Visit and Masterclass on Power Transmitting Systems & Product Design

The Department of Mechatronics Engineering hosted a Global Faculty Visit and Masterclass by Dr. Ashok Kaushal, Global Visiting Faculty, Concordia University, Canada, on 01 September 2025. The masterclass, conducted for III Year students, focused on Power Transmitting Systems and Product Design, providing valuable academic and industry-oriented insights.

The session offered in-depth perspectives on advanced design methodologies, research opportunities, post-doctoral pathways at Concordia University, and guidance on capstone projects and prototype development. The visit also facilitated discussions on global co-teaching and co-supervision models, along with strategic interactions with the Leadership Council to exchange best practices in technical education.

The department extends sincere thanks to Dr. Vijila Edwin Kennedy, Director, KGEO, for facilitating the visit. The event was coordinated by Dr. M. Saravana Mohan (Coordination Lead), with academic coordination by Dr. Samuel Ratna Kumar, HOD/Mechanical Engineering, and Mr. K. Manikanda Prasath. Execution support was provided by the KGEO Team: Mr. R. Kishore Rangarajan, Mr. Sathish Kumar Sagadevan, and Mr. Amrish. Departmental arrangements for the masterclass and faculty interactions were managed by Mr. A. Ramkumar, Mr. K. Murugesan, Mr. Sivaguru J, and Mr. R. Saravanan, Assistant Professors, Department of Mechatronics Engineering.

Key Outcomes:

- Advanced insights into power transmitting systems and product design
- Exposure to research opportunities and post-doctoral pathways at Concordia University
- Guidance on capstone projects and prototype development
- Understanding global co-teaching and co-supervision frameworks
- Knowledge exchange on leadership and academic best practices

GLOBAL INSIGHTS
STUDENT SERIES

K-GEO Kumaraguru Global Engagement Office

in partnership with
Departments of Mechatronics Engineering

Power Transmitting Systems

Master Class Session

Dr. Ashok Kaushal

Chair of Capstone Design Committee [Mechanical Sciences]
Concordia University, Canada

01 SEP 2025 | 01:40 PM | Venue: A 201 Classroom

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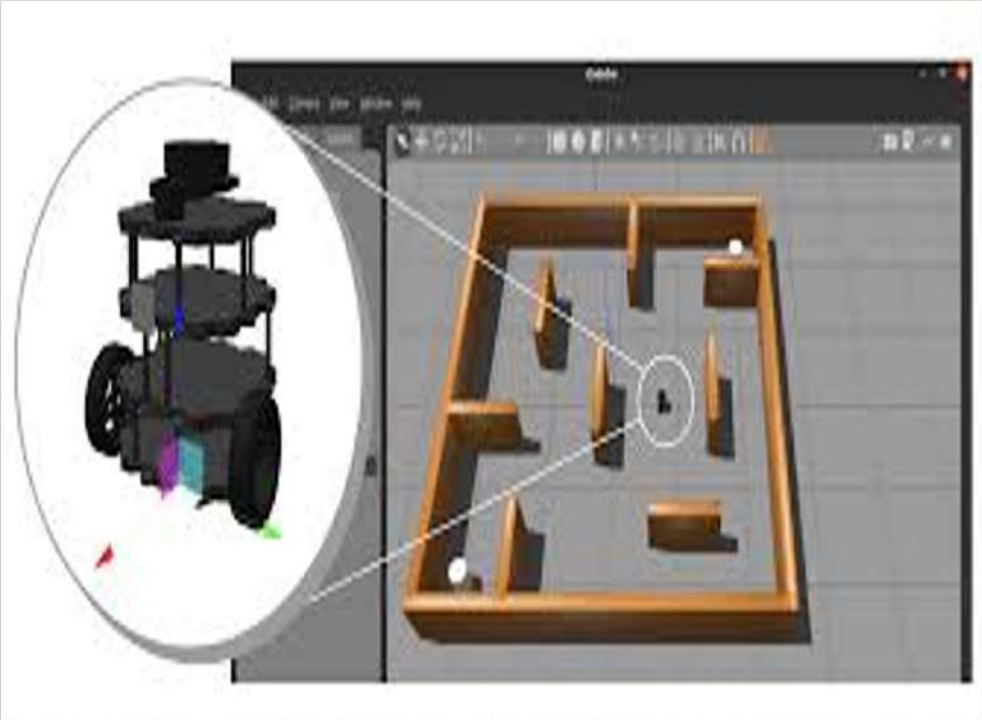
kumaraguru_geo | k-geo | geo@kumaraguru.edu.in

Hands-on Training Program on Robot Operating System (ROS)



A comprehensive hands-on training program on Robot Operating System (ROS) was conducted from 15 September 2025 to 24 October 2025 with the objective of enhancing students' skills in mobile robot programming and system integration. The program was led by Mr. Arun Balaji, CEO, YOI Robotics Laboratory, and coordinated by Mr. A. Ramkumar, Assistant Professor, Department of Mechatronics Engineering.

The training provided industry-oriented exposure to robotics, focusing on ROS-based mobile robot development, real-time programming, and system integration. Participants gained practical experience through hands-on sessions, enabling them to understand real-world robotic applications and workflows.

Key Highlights:

- Industry-oriented robotics training
- Practical exposure to ROS-based mobile robot development
- Real-time integration and programming experience

Technical Lecture on Hydraulic Systems for Emerald Company

A technical lecture on Hydraulic Systems was conducted for Emerald Company employees on 25 July 2025, focusing on industrial applications, key system components, and essential maintenance practices. The session was delivered by Mr. K. Murugesan and Mr. T. Suresh, providing practical insights into real-world hydraulic system operations.

The program was coordinated by Mr. Nagarajan, Sakthi Excellence Academy (SEA), ensuring effective knowledge transfer and interactive learning. The session enhanced participants' understanding of hydraulic system design, operation, and troubleshooting in industrial environments.

Guest Lecture on Universal Human Values

A guest lecture on Universal Human Values was delivered by Mr. Sivaguru J, Assistant Professor, Department of Mechatronics Engineering, as part of the One-Week Faculty Development Programme (FDP) on the theme “Inculcating Universal Human Values in Technical Education”, held from 24 November 2025 to 28 November 2025.

The programme was organized by the Faculty Development Training Centre, Government College of Technology (GCT), Coimbatore, in association with TPGIT, Vellore. The session focused on fostering harmony in family and society, strengthening human relationships, understanding nature and existence, and encouraging self-evaluation.

Outcomes to Society:

- Promotes ethical behaviour, harmony, and responsible citizenship within the community.
- Encourages value-based actions that support peaceful coexistence and sustainable societal growth.

Mental Health Awarness

The Mechatronics Department Association organized a World Mental Wellness Day session for second-year Mechatronics Engineering students on 8th October 2024, aiming to highlight the importance of mental health and emotional well-being in academic life. The event involved simple yet engaging reflective and interactive activities that encouraged students to pause, think, and express their thoughts in a supportive classroom environment. Active participation from the students contributed to a calm and positive atmosphere, reinforcing the message that mental wellness is essential alongside technical and academic growth.

Master Class on Embedded Systems

The Department Association of Mechatronics Engineering organized a Master Class on Embedded Systems on 15th September 2025 for Mechatronics students. The session provided an overview of embedded systems, various types of microcontrollers, and professional approaches to system design and development. Emphasis was placed on industrial relevance and real-world applications, helping students gain practical insights and a clearer understanding of embedded system operations. The event successfully motivated participants to explore advanced concepts and applications in embedded systems.

Entrepreneurship and Emerging Technologies

The Mechatronics Department Association conducted an informative session on Entrepreneurship and Emerging Technologies on 28th September 2025 for second-year students, with participation from interested third-year and final-year students. The event focused on introducing students to entrepreneurial thinking, startup culture, and current technological trends shaping the engineering and industrial landscape. Through an interactive talk and discussion-oriented approach, the session encouraged students to explore innovation beyond academics, understand real-world applications of emerging technologies, and consider entrepreneurship as a viable and impactful career path.

Guest Lecture on Research Paper Writing and Publication

On 15th November, a lecture session on research paper writing and publication was delivered by Mr. R. Raffik, providing valuable insights into the academic publishing process. The session covered the overall structure of a research paper, addressed common doubts faced by students, and explained effective strategies for presenting research work clearly and professionally.

The speaker also introduced useful tools and online resources to support literature review, formatting, plagiarism checking, and manuscript preparation. The session offered practical guidance, enabling students to gain a clearer understanding of efficient research documentation and publication practices.

Faculty Developed/ Attended Programs

01

Scheme of Financial assistance for setting Up of Electronics and ICT Academics

Faculty Name & Designation
Dr. B. Sabitha - Assistant Professor III

Date
8/18/25 - 8/29/25

Mode
Online

Organising Agency
Ministry of Electronics and Information Technology

Level
National Level

02

Scheme of Financial assistance for setting Up of Electronics and ICT Academics

Faculty Name & Designation
Dr. K. Akila - Assistant Professor

Date
8/18/25 - 8/29/25

Mode
Online

Organising Agency
Ministry of Electronics and Information Technology

Level
National Level

03

Scheme of Financial assistance for setting Up of Electronics and ICT Academics

Faculty Name & Designation
Mr. R. Raffik - Assistant Professor II

Date
8/18/25 - 8/29/25

Mode
Online

Organising Agency
Ministry of Electronics and Information Technology

Level
National Level

04
Gen AI in Digital Content Creation

Faculty Name & Designation
Mr. R. Raffik - Assistant Professor II

Date
7/28/25 - 1/8/25

Mode
Offline

Organising Agency
NITTTR - Chennai

Level
National Level

05
Underwater Sensors and its Applications

Faculty Name & Designation
Mr. R. Raffik - Assistant Professor II

Date
8/18/25 - 8/22/25

Mode
Online

Organising Agency
NITTTR - Chennai

Level
National Level

06
Sustainability In The Era Of Automation and Robotics: IoT Driven Advanced Manufacturing

Faculty Name & Designation
Mr. A. Ramkumar -Assistant Professor II

Date
11/24/25 - 11/29/25

Mode
Online

Organising Agency
Sri Krshna College of Engineering and Technology

Level
National Level

07
AI for Teaching and Learning

Faculty Name & Designation
Dr. B. Sabitha - Assistant Professor III

Date
8/18/25 - 8/29/25

Mode
Online

Organising Agency
IIT Guwahati and Kanpur, MNIT Jaipur, IIITDM Jabalpur, NIT Patna

Level
State Level

08
AI for Teaching and Learning

Faculty Name & Designation
Dr. K. Akila - Assistant Professor

Date
8/18/25 - 8/29/25

Mode
Online

Organising Agency
IIT Guwahati and Kanpur, MNIT Jaipur, IIITDM Jabalpur, NIT Patna

Level
National Level

09
Assesment - Testing Knowledge, Skill, and Attitude

Faculty Name & Designation
Mr. R. Raffik - Assistant Professor II

Date
10/5/25

Mode
Online

Organising Agency
NPTEL

Level
National Level

10
Sports nutrition for specific sports

Faculty Name & Designation
Mr. R. Raffik - Assistant Professor II

Date
7/6/25 - 8/6/25

Mode
Face to Face

Organising Agency
NPTEL

Level
National Level

11
Surival Guide for a toxic workspace

Faculty Name & Designation
Mr. R. Raffik - Assistant Professor II

Date
11/7/25

Mode
Face to Face

Organising Agency
NPTEL

Level
State Level

12

Skill_development_Workshop

Faculty Name & Designation
Dr. K. Akila - Assistant Professor

Date
11/17/25

Mode
Face to Face

Organising Agency
Tamilnadu state council for Eduaction

Level
National Level

13

Smart manufacturing and Industry 4.0: Bridging the Gap between Academia and Industry

Faculty Name & Designation
Mr. K. Murugesan - Assistant Professor II

Date
12/15/25

Mode
Face to Face

Organising Agency
All India Council For Technical Education

Level
National Level

14

Underwater Sensors and its Applications

Faculty Name & Designation
Mr. R. Raffik - Assistant Professor II

Date
08/18/25

Mode
Face to Face

Organising Agency
National Institute of Technical Teachers Training and Research, Chennai

Level
National Level

Organised Programs

01
Universal Human Value II

Faculty Name & Designation	Date	Level
Mr. J. Sivaguru - Assistant Professor II	7/23/25 - 7/30/25	Within KCT

02
1C1C Industry Co Teaching on ROS

Faculty Name & Designation	Date	Level
Mr. A. Ramkumar - Assistant Professor II	9/15/25 - 10/24/25	Within KCT

03
CPC – Student Membership

Faculty Name & Designation	Date	Level
Mr. Murugesan K - Assistant Professor II	11/21/25	Within KCT

04
Digital Twin-based Real-Time Detection for FDM Additive Manufacturing

Faculty Name & Designation	Date	Level
Dr. B. Sabitha - Assistant Professor III	12/13/25	Within KCT

05

FDP on Industrial Plant Automation Using Siemens Plant Simulation

Faculty Name & Designation	Date	Level
Dr. B. Sabitha - Assistant Professor III	11/26/25	Within KCT

Interdepartmental CAD Design Challenge – Design Quest

On 16th September, the Department Association of Mechatronics successfully organized "Design Quest", an interdepartmental CAD design challenge conducted in collaboration with the Mechanical, Automobile, and Aeronautical Engineering Department Associations. The event provided a creative and technical platform for students to showcase their design skills, innovation, and engineering problem-solving abilities through Computer-Aided Design (CAD).

Participants presented their digital design models, which were evaluated based on creativity, functionality, accuracy, and practical application. The program emphasized hands-on learning, interdisciplinary collaboration, and design thinking, enabling students to translate theoretical concepts into functional digital solutions. The event concluded with the announcement of winners, who were awarded prize money in recognition of their outstanding performance, making the competition both engaging and rewarding.

Teachers' Day Celebration

On 4th September, the Department Association of Mechatronics organized a Teachers' Day celebration to honor and appreciate the dedicated faculty members of the department. The event was conducted as a gesture of gratitude for their continuous guidance, support, and commitment to academic excellence.

To make the occasion lively and memorable, a series of fun and interactive activities were organized, encouraging enthusiastic participation from the faculty. The celebration fostered warmth, joy, and mutual respect, strengthening the bond between students and teachers. The event concluded on a joyful note, leaving behind cherished memories and heartfelt appreciation for the mentors.

Publication Scopus

Mechanical and Functional Performance of Epoxy Composites Reinforced with Cluster Bean Fibers and Balloon Vine Stem Lignin

Faculty Name & Designation

Mr. R. Raffik
Assistant Professor II

Date

October, 2025

Criteria Number & Name

1.7_Journal_Scopus

Collaborator Details

P. Sathish Kumar1 · R. Soundararajan2 · R. Raffik3 · L. Feroz Ali4

Publisher Details

Patent's Published

Steering Arrangement and Control Method for an Autonomous Vehicle

Faculty Name & Designation

Dr. S. A. Pasupathy
PROFESSOR

Patent Status

Published

Design Status

Registered

Copyright Status

Registered

Inventor Affiliation

PASUPATHY SANGAREDDY ALAGIRISAMY

Kumaraguru Academic Excellence Awards 2025

Impactful Educator Award at Kumaraguru Academic Excellence Awards 2025

Faculty Name & Designation

Mr. Murugesan K
Assistant Professor II

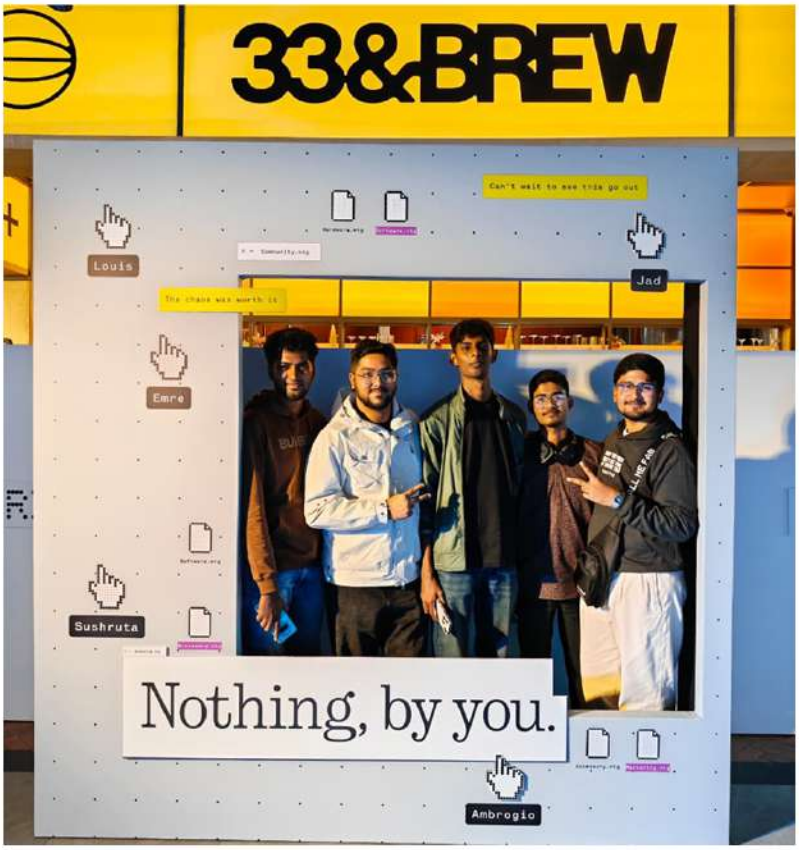
Thanish x Nothing

T Thanish (24BMC067)

Thanish is an active technology community contributor with hands-on experience in product evaluation, testing, and structured feedback. He has participated in multiple review programs, offering detailed insights on hardware and software based on real-world usage.

He has been involved in testing alpha and beta-stage devices and software, contributing to the identification of usability issues, performance gaps, and design inconsistencies. His feedback focuses on reliability, user experience refinement, and overall product readiness prior to public release.

Beyond testing, Thanish plays an active role in the technology community in India through product events, discussions, and community initiatives. He has been recognized among the top community contributors, including being listed within the top 10 community members for consistent engagement and high-quality feedback. He is also part of several unofficial community programs, particularly within the Nothing ecosystem. He is soon expected to collaborate with overseas startups, including Canadian startups, contributing to product development and early-stage testing initiatives.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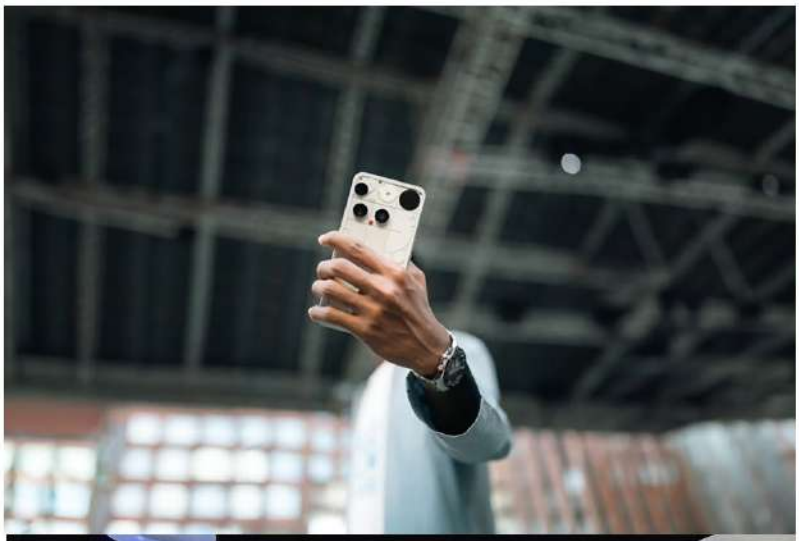

Championship Achievements at FKDC & IKR

Students from the Department of Mechatronics Engineering achieved outstanding success at two major national-level karting competitions, securing multiple event wins and overall championships.

At the Indian Karting Race (IKR) held at Coast Speedway, Karumathampatti, the team emerged as Overall Champions, winning in Acceleration, Skidpad, and Endurance events, demonstrating strong engineering design, performance optimization, and race endurance.

At the Formula Kart Design Challenge (FKDC) conducted at Kari Motor Speedway, Chettipalayam, the team clinched the Overall Championship, securing top positions in Acceleration, Lateral Acceleration, Skidpad, Autocross, and Endurance, along with Runners-up in Design Presentation. This performance reflected excellence in design innovation, vehicle dynamics, and system integration.

The achievements were led by

Sri Gayathri M 24BMC060
Mitra B 24BMC031
Suryakumar K 23BMC057
Sanjai Kanna R 24BMC045
Aswath Kumar S 24BMC005


fmae
fmae
fmae

National-Level Karate Championship

Manojkumar K (24BMC030)

Manojkumar delivered an outstanding performance at the 28th All India Shitoryu Karate-Do Championship 2025, held in Mysore on 1st and 2nd November 2025. Competing against skilled athletes from across the country, he secured Second Place in Kata and Third Place in Kumite, earning national-level recognition and bringing pride to the institution.

His achievement reflects dedicated training, discipline, mental resilience, and unwavering commitment to martial arts. This remarkable performance stands as an inspiration to fellow students, encouraging them to strive for excellence not only in academics but also in sports and extracurricular pursuits.

Eblitz Achievement – BAJA SAE INDIA 2026

Team E-Blitz successfully completed the BAJA SAEINDIA 2026 event by clearing all technical inspections and participating in every dynamic event, demonstrating strong engineering execution, teamwork, and competitive performance.

Key Achievements:

- **Social Media Event – Winners**
- **MATLAB Simulation Event – AIR 6**
- **Endurance Event – AIR 35**
- **Acceleration Event – AIR 23**
- **Sled Pull Event – AIR 30**

The team's consistent performance across technical and dynamic categories reflects their dedication, problem-solving skills, and practical engineering expertise, bringing recognition and pride to the institution.

SAE Aerothon Competition 2025

Students of the Department of Mechatronics Engineering demonstrated exceptional innovation and technical excellence by participating in the prestigious SAE Aerothon Competition, held on 14th and 15th November 2025. Competing against teams from across the country, they showcased strong capabilities in design, problem-solving, and real-time application of aeronautical and mechatronics principles.

Their impressive performance earned them a Special Recognition Award along with a cash prize of ₹30,000, marking a significant achievement for the department. This accomplishment reflects the students' dedication, teamwork, and passion for engineering innovation, bringing pride and recognition to the institution.

The achievements were led by

Muralidharan D 23BMC033
Jishnu A 23BMC302
Kabilan T 23BMC303
Balamurugan V J 23BMC008
Parthibanraj P 23BMC070
Gopinath Pandian N 23BMC016


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AEROTHON 2025
SAEINDIA AEROSPACE
SPECIAL AWARD
Rupees
THIRTY-THOUSAND
₹ 30,000
SPONSORS
HEXAGON


SAEINDIA
AEROSPACE
AEROTHON 2025
HEXAGON

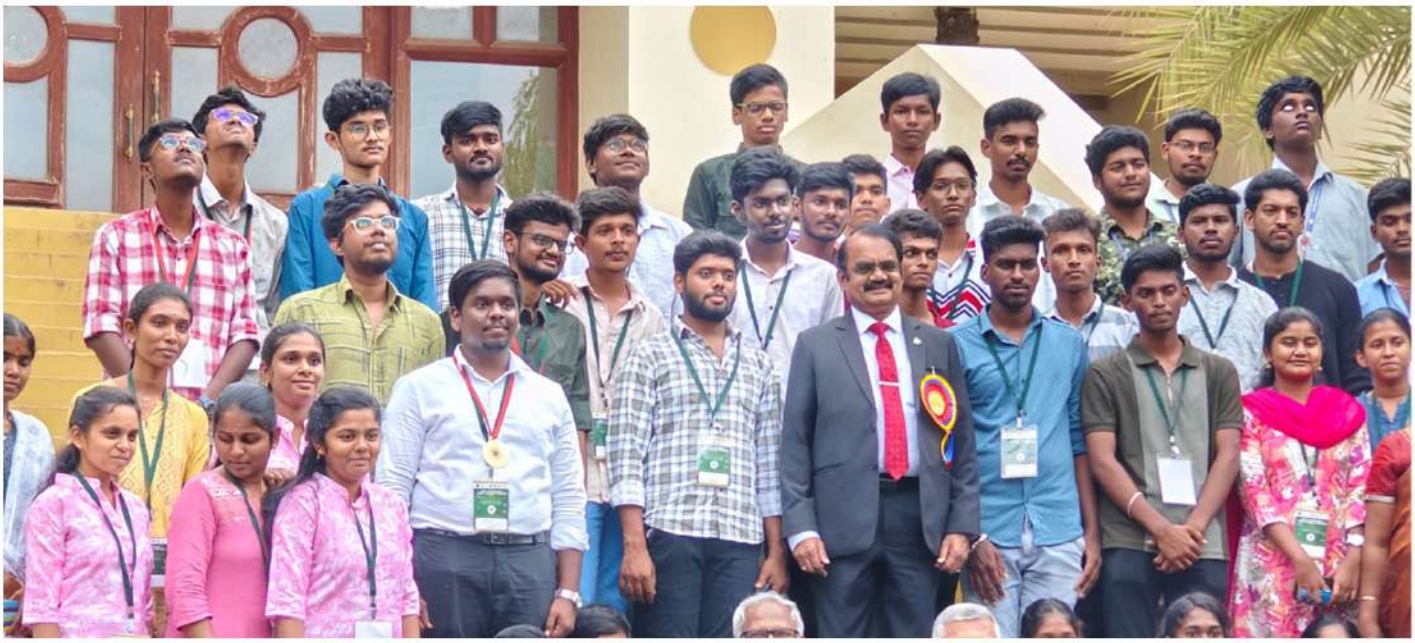
Mitigation and Management of Space Debris Using Advanced Composite Materials

Kabilan T (23BMC303)

The increasing number of satellites and space missions has led to a growing problem known as space debris, which includes inactive satellites, rocket fragments, and collision debris orbiting Earth at extremely high speeds. These objects pose a serious threat to operational spacecraft and future space missions.

At the Youth Astronomy and Space Science Congress in Sivakasi, students Kabilan and Kishore presented a concept using advanced composite materials to capture and manage space debris. Their idea combines Kevlar fibers, space-grade aluminum, and a non-Newtonian fluid layer to absorb high-velocity impacts and reduce damage from debris. The project also suggests using electromagnets to attract metallic fragments.

The work received the Best Presentation Award from Dr. Mayilsamy Annadurai, highlighting the importance of innovative engineering approaches in addressing the growing challenge of space debris and ensuring a safer future for space exploration.



Startup Interview - Dhartrix Motors Pvt. Ltd.

Dharani Dharan

My journey began with a deep curiosity for building and experimenting, which started during my school days and grew stronger through hands-on learning. College life tested my resilience, especially due to financial challenges, but those struggles only strengthened my determination. In my first year, I began working on an electric bike concept, and by the end of my second year, I successfully developed a model capable of running 700 km on just one hour of charging—a milestone that shaped my path.

Motivated by this achievement, I founded a startup in my third year to transform the idea into a real-world solution. With the constant support and guidance of Dr. Saravana Mohan, HOD, Prof. Saravanan, and the department, I overcame technical and financial hurdles. After graduation, I formally established Dhartrix Motors Pvt. Ltd., Karur, which later achieved a major milestone with a ₹200 crore investment. This journey reflects perseverance, innovation, and belief, and I hope it inspires students to pursue their ideas with confidence and determination.

Sports Acheivements

01

Ramaalagumurugan B (22BMC067)

State Ashtedu Akhada Championship – First Place
State Ashtedu Inner – First Place

02

Harisankar S (22BMC012)

Anna University Athletics Zonal (Jawaharlal Nehru Stadium, Coimbatore)

- 200m – Bronze
- 400m – Bronze
- 4×400m Relay – Gold

03

Rishi Kalyan S (22BMC036)

Anna University Chess Zonal (Asian College of Engineering and Technology, Coimbatore) – First Place

04

Ragunandan M (22BMC034)

Anna University Athletics Zonal – Hammer Throw (Jawaharlal Nehru Stadium, Coimbatore) – 🥇 Gold

05

Tarun N (22BMC053)

Anna University Badminton Zonal (SNS College of Technology, Coimbatore) – First Place
Anna University Interzonal Badminton (Kamaraj College of Engineering and Technology, Virudhunagar) – First Place

06

Thaliravan V S (22BMC054)

Anna University Ball Badminton Zonal (Sri Ramakrishna Engineering College, Coimbatore) – First Place

07

Balaji K (22BMC002)

Anna University Ball Badminton Zonal (Sri Ramakrishna Engineering College, Coimbatore) – First Place

07

Nandhini D (24BMC034)

Anna University Volleyball Zonal (KGISL Institute of Technology, Coimbatore)

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