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Mechanical Engineering Department's Official Newsletter

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Mechanical Engineering Association

Department of Mechanical Engineering

KUMARAGURU COLLEGE OF TECHNOLOGY

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CONTENTS

From the Editors...

Dear Readers,

It is with great pride that we present this month of our departmental newsletter, a testament to the dedication and achievements of our faculty and students. This edition highlights the impactful initiatives, academic contributions, and industry engagements that continue to shape our department's growth and success.

Our faculty have played a pivotal role in organizing various programs, sharing their expertise as resource persons, and receiving well-deserved recognition for their contributions. Their commitment to research is evident through significant paper publications and their role in reviewing manuscripts for reputed journals. These scholarly activities not only enhance our academic standing but also contribute to the broader knowledge ecosystem.

Collaborative activities and strong industry linkages remain at the forefront of our efforts, fostering meaningful partnerships that bridge academia and industry. Active participation in various programs further underscores our faculty's dedication to continuous learning and professional development.

Our students continue to shine through their participation in academic and extracurricular activities, showcasing their skills and enthusiasm. This issue also features snapshots capturing memorable moments, reflecting the vibrant and dynamic environment within our department.

We extend our sincere gratitude to everyone who contributed to this newsletter. Your unwavering support and commitment have been instrumental in making this edition a success. We look forward to many more achievements and collaborations in the future.

Warm regards,

Editors....

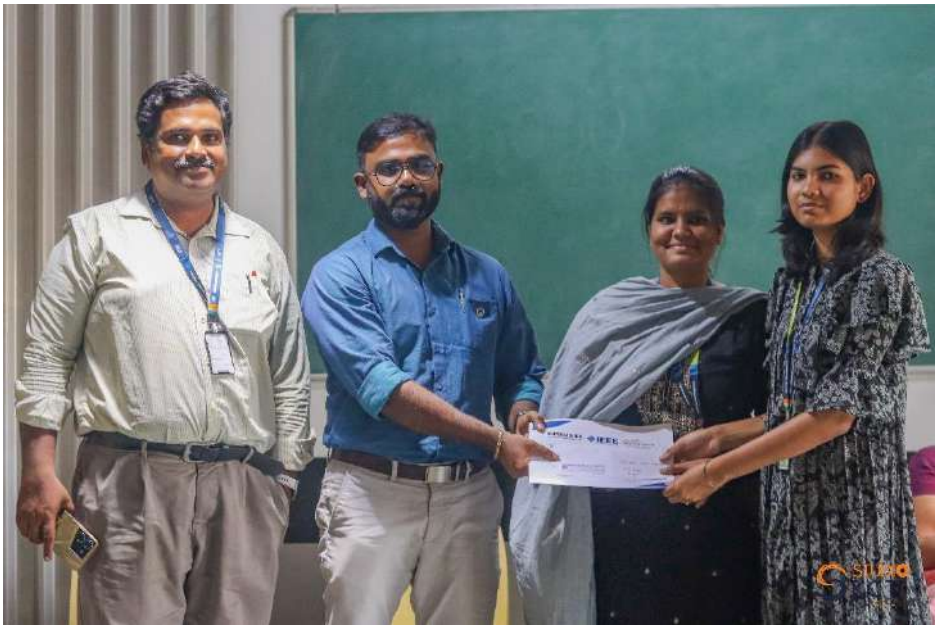
PROGRAMMES ORGANIZED

An industry led webinar on “Geometric Dimensioning and Tolerancing” was organized on 24-02-2025. **Mr. P. P. Manith,** Lead Engineer at ER & D, Capgemini Engineering was the resource person. **Dr. M. A. Vinayaga Moorthi,** Assistant Professor – III, coordinated the event.

Another industry-led seminar session on “Design and Manufacturing of Gear Box” was organized by the department on 26-02-2025. **Mr. R. Mohan Prakash,** Design Engineer, R & D, ZF Wind Power, Coimbatore was the resource person. **Dr. N. Sangeetha,** Senior Associate Professor and **Mr. P. D. Devan,** Assistant Professor – II coordinated the seminar.

FACULTY AS RESOURCE PERSON

Mr. K. Manikanda Prasath, Assistant Professor – II, delivered session on "Union Budget" on 03-02-2025. He also delivered another session on "Master Supply Chain & Industry 4.0" on 12-02-2025.



Dr. P. S. Samuel Ratna Kumar, Assistant Professor – III, was invited as one of the review members for the IEEE- Sponsored IDEATHON SUSTAINA THINK on 28-02-2025.

FACULTY RECOGNITION

Dr. K. K. Arun, Assistant Professor – III, was recognized as Journal Reviewer for the Journal of Engineering Research and Science and for the Advances in Science, Technology and Engineering Systems Journal (ASTESJ).

Dr. B. N. Sreeharan, Assistant Professor – III, was recognized as Journal Reviewer for the Springer Nature.

PAPERS PUBLICATIONS

Dr. K. K. Arun, Assistant Professor – III, published his paper entitled "Enhancing Sustainable Agriculture Through Smart Architecture: An Adaptive Neuro-Fuzzy Inference System with XGBoost Model" in IEEE Xplore, a Scopus indexed journal.

Dr. B. N. Sreeharan, Assistant Professor – III, published a paper titled "A Comprehensive Review of Shrink Fit Technology for Tool Holding, Shrink Fit Method and Induction Heating Effects on Milling Operations" in the International Journal of Machine Design and Technology, Vol. 1, Issue 1 (January – June 2025) pp: (12-29). He also published another paper titled "A Critical Analysis of Flywheel Energy Storage Role in Grid Stability and Frequency Regulation", in IEEE Xplore, a Scopus indexed journal, pp. 1-7, Electronic ISBN:979-8-3503-5377-8 Print on Demand (PoD) ISBN:979-8-3503-5378-5, Electronic ISSN: 2693-3934, Print on Demand(PoD) ISSN: 2693-3942 doi: 10.1109/ICEES61253.2024.10776868, IEEE.

MANUSCRIPTS REVIEWED

Dr. K. K. Arun, Assistant Professor – III, reviewed a manuscript titled "Lean 4.0: A Strategic Roadmap for Operational Excellence and Innovation in Smart Manufacturing", International Journal of Emerging Science and Engineering (IJESE).

Dr. V. Manivel Muralidaran, Assistant Professor – III, reviewed a manuscript titled "Study of Microstructure, Mechanical Properties and SCC Resistance of DMR249B steel weld joints Transactions of the Indian Institute of Metals" for the Transactions of Indian Institute of Metals, an International Journal.

COLLABORATIVE ACTIVITY

Dr. P. S. Samuel Ratna Kumar, Assistant Professor – III, was invited by Clément Ader Institute (ICA), Toulouse, France for a collaborative work to undertake a scientific stay at the Clément Ader Institute from 20-05-2025 to 18-06-2025. The invitation letter was received on 21-02-2025. This stay aimed to study a high-entropy material manufactured by the laser fusion powder bed process. This work is part of a strengthening of the collaboration between the two laboratories and will allow the development of a joint research program on this topic.

PROGRAMMES PARTICIPATED

Dr. B. N. Sreeharan, Assistant Professor - III, completed an online course on "Data Analytics Job Simulation" organized by Deloitte in collaboration with Forage.

Dr. M. A. Vinayaga Moorthi, Assistant Professor - III, participated in an FDP on Innovations and frontiers in metallurgical engineering from 13-01-2025 to 17-01-2025, organized by Dr. Vishwanath MIT world peace university, Pune. Further he also completed following online course from Infosys and Springboard

- Introduction to Deep Learning
- Introduction to Robotic Process Automation
- Introduction to Data Science
- Introduction to Artificial Intelligence
- Computer Vision 101
- Introduction to Natural Language Processing

INDUSTRY LINKAGES

Our faculty members, **Dr. V. Manivelmuralidaran,** Assistant Professor – III, **Dr. M. A. Vinayagamoorthi,** Assistant Professor – III and **Dr. B. N. Sreeharan,** Assistant Professor – III along with KLAS faculty and students visited **M/s. Kovaii Fine Coat Private Limited, Coimbatore** on 20-02-2025 to conduct a pilot study to perform skill gap analysis for CODISSIA.

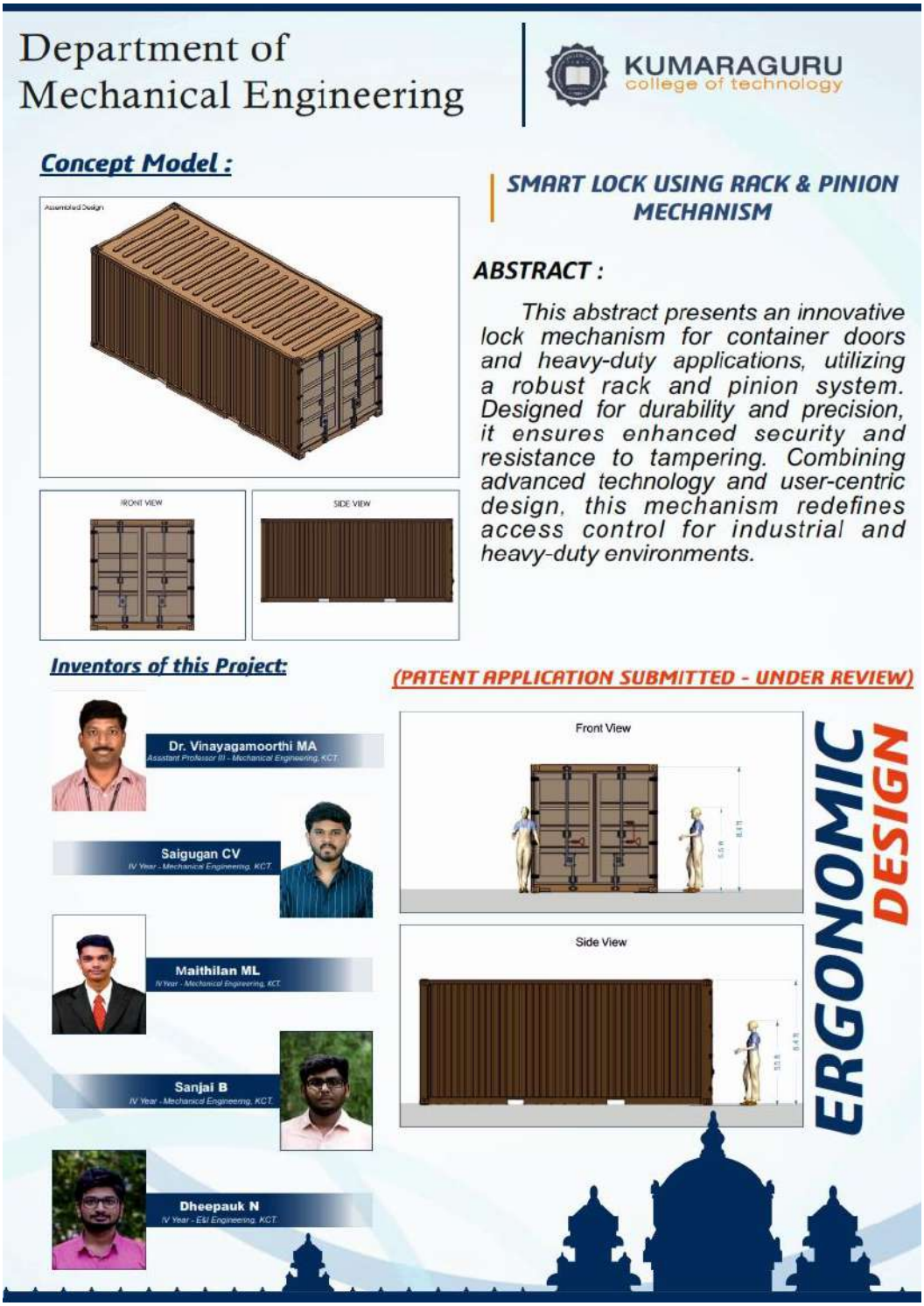


On 01-02-2025, **Dr. V. R. Muruganantham,** Associate Professor, **Dr. M. Thirumalai Muthukumaran,** Assistant Professor – III, and **Mr. P. D. Devan,** Assistant Professor – II visited **M/s. LR Fabrications Private Limited,** Plant 1., Coimbatore regarding the scope for doing Industry consulting assignments. Also visited their fabrication unit for finding opportunities for collaboration.



PATENTS FILED

Dr. M. A. Vinayaga Moorthi, Assistant Professor - III, filed a patent titled "ERGONOMIC SMART LOCKING SYSTEM" on 18-02-2025.



STUDENT ACTIVITIES

AJMAL BATCHA S - 22BME004, **R. J. ALDRIN**, 22BME007, secured 3rd place in START UP IDEA BID event for IEEE MAS HUB SUMMIT held at Thiagarajar College of Engineering, Madurai on 08-02-2025 and shortlisted for the PITCH PERFECT event under the guidance of **Dr. Vinayagamoorthi M A**, Assistant Professor – III.

Sree Ram G (22BME105) showcased his exceptional skills at the All India Inter University Wushu Championship, held from February 22 to 27 at Chandigarh University, Punjab, securing a bronze medal in a highly competitive event. Demonstrating remarkable strength and technique, he made a significant mark at the national level, bringing pride to the institution with his outstanding performance.

STUDENT AWARDS FOR THEIR ACHIEVEMENT DURING REPUBLIC DAY CEREMONY AT KCT

Team ZEALL RACING | E – ZEALL RACING

A team of talented Mechanical Engineering students from our institution participated in the KRC - Kart Racing Championship, held from August 19 to 23, under the team's name Zeall Racing | E-Zeall Racing. Demonstrating exceptional skill, teamwork, and engineering prowess, the team secured the title of Overall Champions in both the IC and Electric categories. The team members **included Kamalikka V (22BME044), Harsath R (22BME036), Pratheesh Hariharan C (22BME075), Harekrishnan G R (23BME029), Snehaa Senniappan (23BME087), Ashwinkumar S S (23BME010), Varshith D (23BME098), Harish Kumaar S (23BME034), Abdul Razak J (23BME001), Ramakrishnan M (23BME078), Deepak Kumar S (22BME018), Vikkram L K (22BME124), Vishnu A (22BME129), Navin G (23BME057), Harith S (23BME036), Pranesh S P (23BME070), and Raghav A (23BME076).** Their dedication and innovation in designing and racing karts set a new benchmark of excellence, making the institution proud with their remarkable achievement.

Team MOTO KCT | E – MOTO KCT

A group of passionate Mechanical Engineering students from our institution participated in MOTO STUDENT, held from October 24 to 27, under the team's name Moto KCT | E-Moto KCT. Showcasing their expertise in design, performance, and innovation, the team secured the prestigious Design and Acceleration Award. The dedicated team members included **Sivathiruthani S (22BME102), Hemanth S (23BME038), Vijayaraj T (23BME104), Vishwak Raaj M (23BME108),** and **Sree Raja M S (23BME088).** Their outstanding efforts in designing and optimizing the performance of their motorcycle reinforced their commitment to excellence, bringing pride to the institution with their remarkable achievement.

KARE for South TN

Smith S (22BME103) and **Nitin B (22BME069),** two Mechanical Engineering students from our institution, actively participated in KARE for South TN during 18/12/2024 to 22/12/2024, an initiative under Kumaraguru Action for Relief and Empowerment (KARE). This volunteer movement is dedicated to supporting victims of natural disasters and other calamities. Their involvement in this noble cause highlights their commitment to social responsibility, resilience, and community welfare. Through their efforts, they have contributed to making a meaningful impact, embodying the institution's values of compassion and service.

KARE for WAYANAD

Naveen G G (21BME058), Smith S (22BME103) and **Nitin B (22BME069),** Mechanical Engineering students, actively participated in KARE for Wayanad during August 1 and 2, 2024, an initiative under Kumaraguru Action for Relief and Empowerment (KARE). This volunteer movement focuses on supporting victims of natural disasters and other calamities, providing aid and assistance to affected communities. Through his contributions, he has helped make a meaningful impact, embodying the institution's values of compassion and service.

IIT MADRAS – PAPER PRESENTATION

Praveen K (23BME073), a second year Mechanical Engineering student, secured First Place in Paper and Poster Presentation at SHAASTRA BIOGEN - 2025, IIT Madras on 05-01-2025. He presented his research on "CRISPR-Cas9 Technology for Therapeutic Gene Editing – Clustered Regularly Interspaced Short Palindromic Repeats," showcasing his deep understanding of cutting-edge genetic engineering techniques. His outstanding research, innovative approach, and effective presentation skills set him apart in this prestigious competition. This remarkable achievement highlights his dedication to academic excellence and innovation, bringing pride to the institution.

TEAM EVOKE – NIT TRICHY

Nevathan V (24BME072) and **Mugesh M (24BME064),** first-year Mechanical Engineering students from our institution, proudly represented Team Evoke and secured First Place in Choreonite (Eastern) at NIT Festember, Trichy during September 27 and 28, 2024. Their exceptional performance, creativity, and dedication to the art of dance set them apart in this prestigious cultural competition. Their achievement showcases their passion for the performing arts and highlights the diverse talents within our institution, bringing pride and recognition to the college.

MATRIX CLUB – IIT MADRAS

Hemanth S (23BME038), a skilled Mechanical Engineering student from our institution, represented the Matrix Club and secured Second Place in the Team Relay Event at Shaastra, IIT Chennai on 06-01-2025. His teamwork, endurance, and competitive spirit played a crucial role in achieving this remarkable feat.

HAASYA KCT – NIT FESTEMBER

Gokulakrishnan M (21BME024), a creative and talented, third year Mechanical Engineering student, represented Haasya Club and secured First Place in Asatha Povathu Yaaru at NIT Festember, Trichy on September 27, 2024. His exceptional humor, wit, and stage presence captivated the audience, making him stand out in this prestigious comedy competition. His achievement showcases the diverse talents within our institution and brings pride and recognition to the college.

YOGASANA

Surya P (22BME116), a skilled Mechanical Engineering student from our institution, showcased his exceptional flexibility, strength, and discipline by securing First Place in the Open State Yogasana Championship held at Virudhunagar District on 26/08/2024. His dedication to the art of yoga and his outstanding performance in the competition highlight his commitment to both physical and mental well-being.

ATHLETICS

Haswic V. Vincent (21BME032), a remarkable Mechanical Engineering student, displayed outstanding athleticism by winning the Bronze Medal in both the 100m and 200m events at the Anna University Inter-Zone Athletic Meet held at KSR College of Technology during 30-11-2024 and 01-12-2024.

His exceptional speed and determination also earned him the opportunity to compete at the prestigious All India Inter-University Athletic Meet held at Kalinga Institute of Social Science, Bhubaneswar, Odisha. His achievements exemplify dedication, perseverance, and excellence in both academics and sports, bringing great pride to the institution.

BADMINTON

Mathimuhilan S (24BME057), a 1ST Year Mechanical Engineering student from our institution, showcased his exceptional badminton skills by competing in the South Zone Inter-University Badminton Men's Tournament held at SRM Institute of Science and Technology, Chennai during October 26th to 29th, 2024.

His dedication and performance also earned him the opportunity to participate in the prestigious National Badminton Tournament in Hyderabad.

BASKETBALL

Deepan Karthi V (23BME019) and **Santhosh A (22BME090),** two passionate Mechanical Engineering students from our institution, showcased their skills and sportsmanship by participating in the National Challengers Basketball Club, Mysore during Mysore - December 18 - 24.

Their dedication, teamwork, and competitive spirit highlight their commitment to excellence both on and off the court.

WUSHU CHAMPIONSHIP

Sree Ram G (22BME105) and Aswin R (21BME014), two skilled Mechanical Engineering students from our institution, showcased their strength and discipline by participating in the 33rd Senior National Wushu Championship held at Maharana Pratap Stadium, Raipur, Dehradun, Uttarakhand during 21/09/2024 - 26/09/2024.

Their dedication to the sport and commitment to excellence highlight their perseverance and competitive spirit. Their participation in this prestigious national-level championship brings pride and recognition to the institution, inspiring others to excel in both academics and athletics.

Smith S, 22BME103 **and Sriram A,** 23BME092 has participated in IEE MAS SIGHT HUB SUBMIT, organized by IEEE SIGHT MADRAS SECTION AG, hosted at Thiagarajar College of Engineering, Madurai on 8th February 2025.

Demonstrating their passion for innovation, **Jai Harish D (22BME040)** and **Tamilarasu K (22BME118)** from the Department of Mechanical Engineering, KCT, were shortlisted to pitch their project at the IEEE MAS SIGHT Hub Summit 2024, held on 8th February at Thiagarajar College of Engineering, Madurai.

Team E-Blitz from KCT GARAGE showcased their engineering prowess at E-Baja 2025, a prestigious national-level automotive competition held at BVRIT, Narsapur, from 20th to 25th February. Competing against 80 teams from across the country, Team E-Blitz demonstrated exceptional technical skills and resilience throughout the event.

The team successfully cleared the Electrical Technical Inspection (TI) and Mechanical Technical Inspection (TI)—two critical evaluations that assess the vehicle's design, safety, and compliance with competition standards. Additionally, they passed the brake test, a mandatory requirement to ensure vehicle safety before entering dynamic events. With these milestones achieved, Team E-Blitz earned the opportunity to participate in the prestigious final endurance race, a true test of the vehicle's durability and performance over challenging terrain.

The participating team members—**Barath N S (23BME013), HamsaVardhini S (23BME028), Kishore G (23BME048), Vishnuvardhan R (23BME107), Kamalika M (22BME043), and Harshath R (22BME036)**—played a crucial role in this achievement, showcasing their expertise in electric ATV design and performance.

Maya Suzhal: Mechanical Engineers Take Center Stage

By **Kirubashini P**, 22BME050

The Kumaraguru Drama troupe successfully staged their annual drama, Maya Suzhal, on 12 February 2025, a remarkable adaptation of William Shakespeare's Othello. The production was skilfully organized by Gokulakrishnan M, President of the Kumaraguru Drama troupe, and featured the exceptional talents of students from the Department of Mechanical Engineering.

Maya Suzhal narrates the story of Velmaran, a skilled martial artist, and his beloved Thenmozhi. Despite his strength in battle, Velmaran's tragic flaw — his inability to comprehend his own emotions — leaves him vulnerable to suspicion, manipulated by his close friend Nagappan.

The production's success was driven by the dedication and talent of Mechanical Engineering students. Notable performances by Gokulakrishnan M (final year), Naveen G G (final year), Yuvan Shankarr A (third year), and Vishnu Karthik R (third year) brought the characters to life with remarkable passion and authenticity. Their compelling portrayals deeply resonated with the audience, effectively conveying the emotional intensity of the narrative.

The success of Maya Suzhal stands as a proud achievement for the Mechanical Engineering students, showcasing their versatility and talent beyond academics. Their involvement reflects the holistic learning environment fostered at Kumaraguru Institution, where students are encouraged to excel in both technical and creative pursuits.






SNAP SHOTS

Dr. Vinayaga Moorthi coordinating the webinar

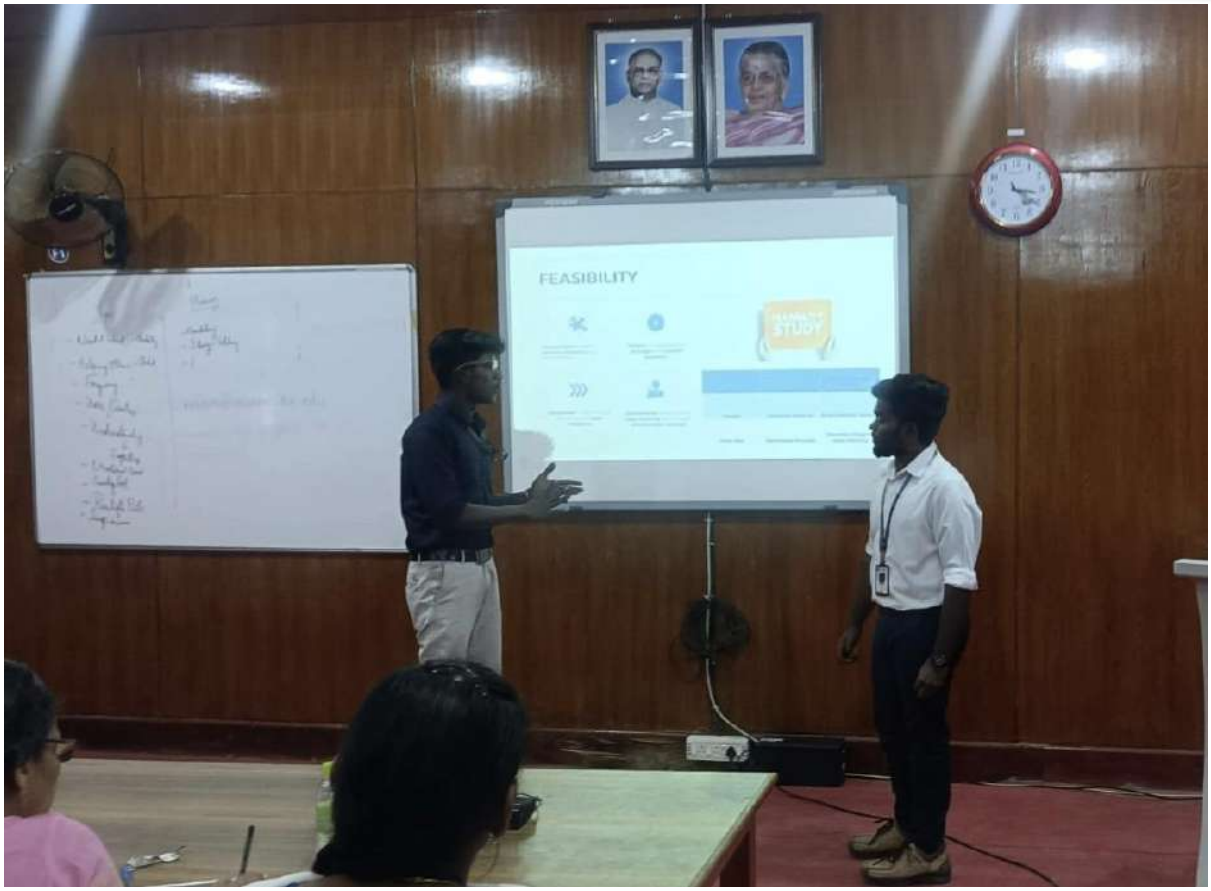
Participants of the Seminar

Mr. Manikandaprasath delivering a talk on “Union Budget”

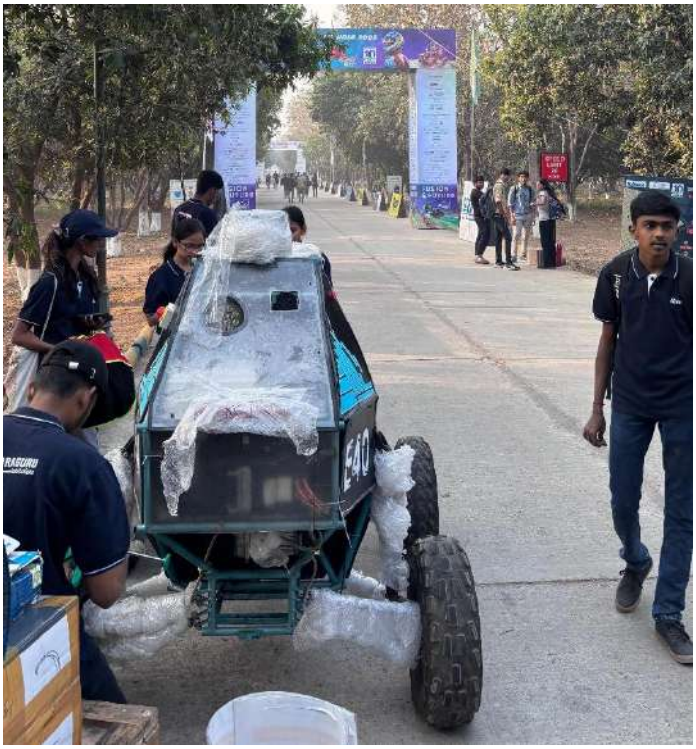
Participants of “Supply Chain Analysis and Industry 4.0” guest lecture

Our faculty team @ LR Fabrications Private Limited

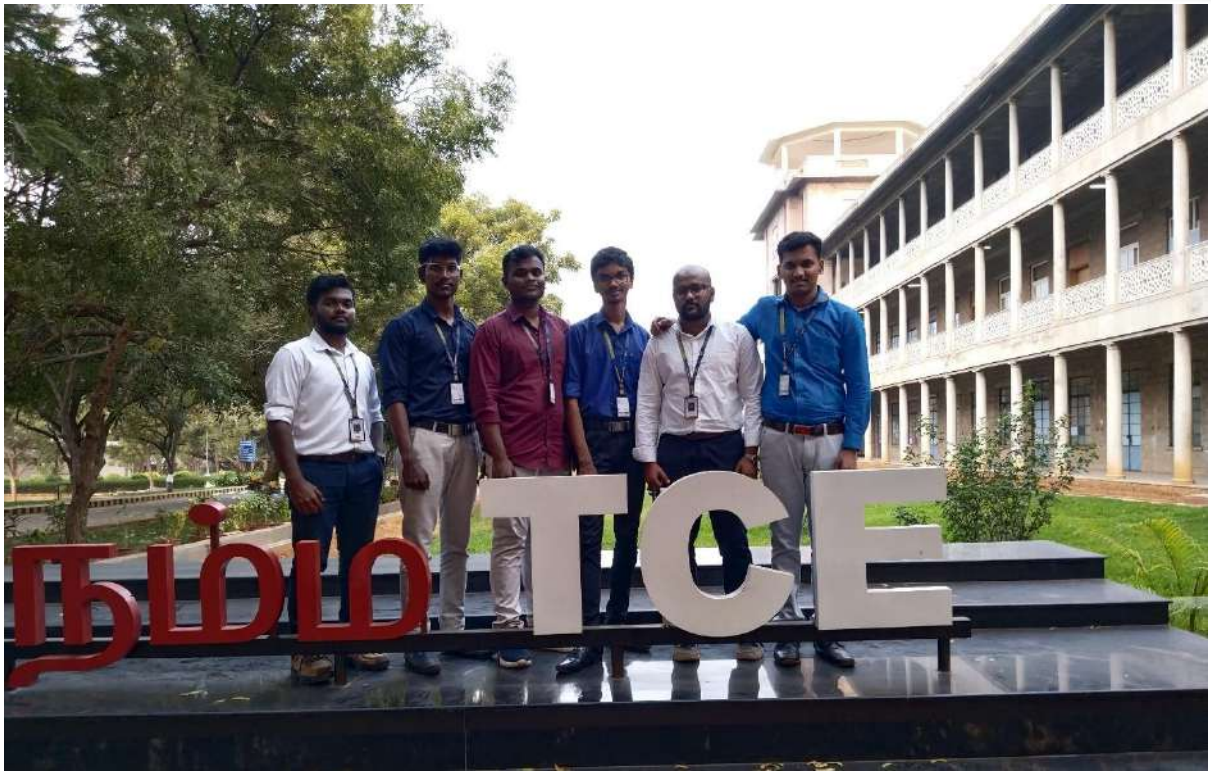
Mr. Sree Ram @ Wushu Competition



Mr. Jai Harish and Mr. Tamilarasu @ Thiagarajar College of Engineering



Team E-Blitz in action



Our students @ Thiagarajar College of Engineering

Industry Experts for Project Review

Our Students, **Gokulakrishnan M** and **Vishnu Karthik R** during Mime Competition

Our Students for KARE for WAYANAD

KUMARAGURU college of technology

COIMBATORE – 641 049

Department of Mechanical Engineering

INSTITUTE VISION:

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

INSTITUTE 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:

To achieve global recognition for the programs of the department by promoting innovation, sustainability, and leadership, contributing to the society.

DEPARTMENT MISSION:

1. To promote innovation in the Mechanical Engineering through curriculum, focusing on sustainability and ethical practices.
2. To create an active learning ecosystem for acquiring knowledge and skills in Mechanical Engineering.
3. To facilitate research in mechanical systems and sustainable technologies that have an impact on industry and society.

B. E. MECHANICAL ENGINEERING

PROGRAM EDUCATIONAL OUTCOMES (PEO's):

PEO 1 : Graduates to pursue careers in Mechanical engineering and allied fields.
PEO 2 : Graduates to engage in the execution of multi-disciplinary engineering activities.
PEO 3 : Graduates to pursue professional development programs in Mechanical Engineering Science and Management.

PROGRAM OUTCOMES (PO's):

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions:** 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.
4. **Conduct investigations of complex problems:** 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.
5. **Modern tool usage:** 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.
6. **The engineer and society:** 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.
7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** 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.
11. **Project management and finance:** 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.
12. **Life-long learning:** 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 (PSO's):

1. Apply the fundamentals of science and mathematics to solve complex problems in the field of design and thermal sciences.
2. Apply the concepts of production planning and industrial engineering techniques in the field of manufacturing engineering.

M. E. INDUSTRIAL ENGINEERING

PROGRAM EDUCATIONAL OBJECTIVES (PEO's):

PEO 1 : Graduates will be mid to higher level management / engineering professionals with responsibilities in engineering management, data analysis and business operations.

PEO 2 : Graduates will be engineering professionals, and technology leaders who would manage such functions as plant engineering, production, supply chain and quality management.

PEO3 : Graduates would function as educators or researchers in academic institutions.

PROGRAM OUTCOMES (PO's):

PO1 : An ability to independently carry out research /investigation and development work to solve practical problems.

PO2 : An ability to write and present a substantial technical report/document.

PO3 : Students should be able to demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program.

PO4 : Apply knowledge and competencies in manufacturing, analytics, supply chain, quality and engineering management.

PO5 : Apply principles of industrial engineering to solve problems in industry.

PO6 : An ability to work as part of interdisciplinary teams, communicate effectively, model and design engineering systems optimally.