

MECHATRONICS ENGINEERING



MECHATRONICS
ENGINEERING
ASSOCIATION



Newsletter
June 2022 - November 2022



KUMARAGURU COLLEGE OF TECHNOLOGY

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.

MECHATRONICS ENGINEERING

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.

PROGRAMME OUTCOMES (PO'S)

PO. No	Programme Outcomes	Mapped Skills
PO1	Engineering Knowledge	Core Technical Proficiency
PO2	Problem Analysis	Analytical & Critical Thinking
PO3	Design/ Development of Solutions	Design Thinking & Creative Problem Solving
PO4	Conduct Investigations of Complex Problems	Research & Inquiry Skills
PO5	Modern Tool Usage	Technological Proficiency
PO6	The Engineer and Society	Societal Awareness
PO7	Environment and Sustainability	Sustainability and Environmental Consciousness
PO8	Ethics	Ethical Integrity and Professional Conduct
PO9	Individual and Teamwork	Collaboration and Leadership
PO10	Communication	Communication Mastery
PO11	Project Management and Finance	Strategic and Project Management
PO12	Lifelong Learning	Adaptive Learning and Self-Development

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.

Journal Publications

Mr. R. Raffik published two papers in Scopus-indexed journals:

- “Design and Multiperspectivity-Based Performance Investigations of H-Darrieus Vertical Axis Wind Turbine” in the International Journal of Low Carbon Technologies.
- “Investigation on PID Controller Usage for UAV Stability Control” in Materials Today: Proceedings.

Educational Fair by Dina Thanthi in Trichy

June 6-7, 2022

Dr. M. Saravana Mohan, HOD of Mechatronics, guided students during the education fair organized by Dina Thanthi at Taj Marriage Hall, Chathiram Bus Stand, Trichy. The event, inaugurated by Shri. Mookapillai, Managing Director of Mangal and Mangal, offered career counseling and guidance to over 300 students.

Seminar on Indigenization in the Indian Air Force

June 8, 2022

Dr. M. Saravana Mohan participated in a seminar organized by the Indian Air Force at BRD5, Sulur Air Base. The session focused on the indigenization requirements and roadmap for enhancing operational capabilities and local manufacturing in the Indian Air Force.

Industry-Academia Interaction for R&D

June 11, 2022

Dr. M. Saravana Mohan met with representatives from Kannan Tools and Dies, Sri Subaha Ganesh Industrial Estate, Coimbatore. The meeting aimed at fostering collaborations for research and development in product innovation and providing internship opportunities for students.

Mercy Home Visit

June 13, 2022

Mr. J. Sivaguru and his team organized an outing for 16 children from Mercy Home (HIV-positive kids) to Black Thunder amusement park, Coimbatore. This thoughtful initiative aimed to bring joy and create memorable experiences for the children.

Faculty Development Program on Defence Technology

June 20-22, 2022

Mr. P. Magudapathi, Mr. R. Saravanan, and Mr. K. Murugesan attended an FDP on "Defense Technology" organized by the Department of Mechanical Engineering at Kumaraguru College of Technology. The program focused on advancements in defense-related technologies and their applications in engineering.

Guest Lecture on EV Adaptation

June 21, 2022

Dr. M. Saravana Mohan participated in a guest lecture titled “Benchmarking and its Relevance for EV Adaptation” organized by the SSEM Institution Chapter at Kumaraguru College of Technology.

Industry-Academia Interaction on Electric Vehicles

June 21, 2022

Dr. M. Saravana Mohan met with Mr. Sandeep Singh, Vice President of Business Development at Caresoft Global Pvt Ltd, to discuss electric vehicle technologies and launch the Smart E-Mobility Chapter initiative.

IEEE Seasonal School on Image, Video, and Audio Processing

June 23-28, 2022

Faculty members, including Dr. K. Akila, Dr. B. Sabitha, Mr. A. Ramkumar, and Mr. J. Sivaguru, participated in this seasonal school organized by Kumaraguru College of Technology. The program explored cutting-edge pattern recognition techniques in multimedia processing.

NIDHI PRAYAS Program at IIT Hyderabad

June 27, 2022

A team of Mechatronics, Textile, and ECE students mentored by Dr. M. Saravana Mohan and Mr. R. Raffik secured a ₹10 lakh financial grant under the NIDHI PRAYAS Program at iTIC Incubator, IIT Hyderabad. This initiative supports innovative prototypes and product development.

Research Publications

Mr. R. Raffik published papers in Scopus-indexed journals:

- "Metaheuristics-Based Modeling and Simulation Analysis of New Integrated Mechanized Operation Solution and Position Servo System" in Mathematical Problems in Engineering.
- "Single-Input Single-Output System with Multiple Time Delay PID Control Methods for UAV Cluster Multi-agent Systems" in Security and Communication Networks.

Dr. B. Sabitha published a paper titled "A Hybrid Swarm Intelligence Approach for Reactive Power Dispatch in Power Systems" in Advances in Engineering Software.

Paper Submissions

Dr. M. Saravana Mohan submitted a paper on "Investigation on Joint Dynamic Properties of Nanoclay-Based Redundant SCARA Robots".

Community Engagement with Underprivileged Students

July 5, 2022

Mr. J. Sivaguru and his team organized a recreational outing for children from underprivileged backgrounds. Sixteen children were taken to a local amusement park for a day of fun and activities. This initiative aimed to provide these children with an enjoyable experience, fostering a sense of inclusion and bringing smiles to their faces through thoughtful community service.



Workshop on Robotics and Industrial Automation

July 15-20, 2022

A technical workshop focusing on robotics and industrial automation was conducted by Mr. R. Raffik and Mr. R. Saravanan. The session provided participants with insights into the latest robotics technologies, including robotic arm control, automation processes, and integration of IoT systems in industrial setups. Participants engaged in practical demonstrations and learned advanced techniques for implementing automation in industrial operations.

Faculty Training on Hybrid System Modeling

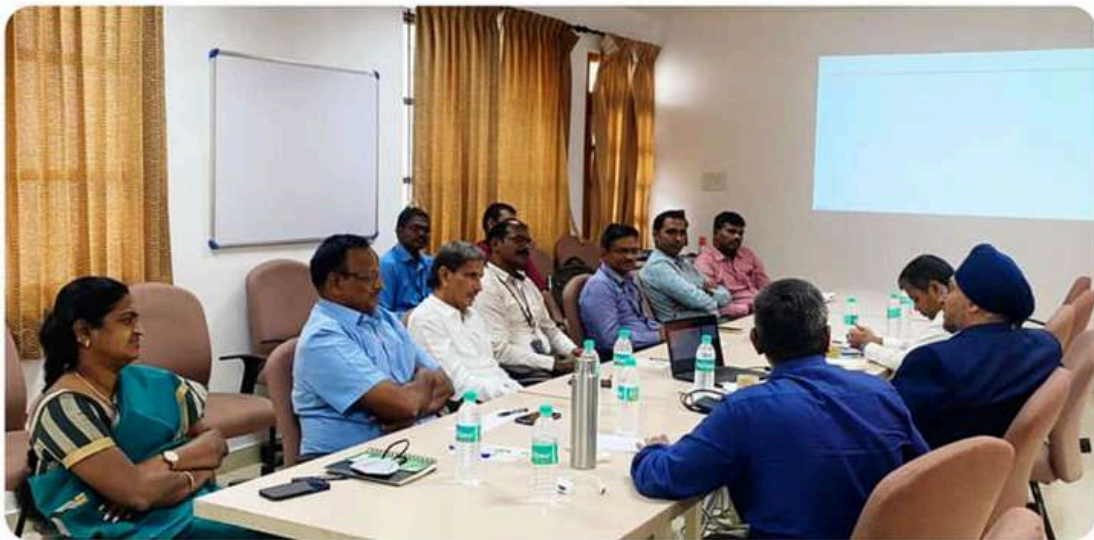
July 23-27, 2022

Dr. M. Saravana Mohan led a specialized training program for faculty members, delving into hybrid systems modeling for robotic applications. The sessions emphasized combining artificial intelligence with mechanical systems for enhanced operational efficiency. The training also introduced participants to new research methodologies and the practical applications of AI in designing robust robotic frameworks.

Industry Collaboration on EV and Smart Manufacturing

July 21, 2022

Dr. M. Saravana Mohan, Head of the Mechatronics Department, met with Sandeep Singh, Vice President of Business Development at Caresoft Global Pvt Ltd. The meeting focused on fostering academia-industry partnerships in electric vehicle (EV) technology and smart manufacturing. Discussions revolved around potential projects, internships for students, and knowledge exchange initiatives aimed at equipping students with industry-relevant skills in advanced technologies.



National-Level Robotics Hackathon Success

July 28, 2022

A student team from the Mechatronics Department, mentored by Dr. M. Saravana Mohan, participated in the National Robotics Hackathon. The team developed an innovative robot designed for industrial logistics, focusing on automating goods movement with precision and efficiency. Their project secured a position in the top 5, reflecting their ingenuity and ability to tackle real-world problems with cutting-edge technology.

Educational Seminar on Power Systems

Dr. B. Sabitha conducted an educational seminar on applying artificial intelligence in resolving power system challenges. The session, attended by over 50 participants, highlighted the potential of AI in optimizing reactive power dispatch and the role of unified power flow controllers in modern grids.

Research Publications

Mr. R. Raffik published a paper in Mathematical Problems in Engineering, titled "Advanced Dynamics and Optimization in Multi-agent Robotics." The research explores the integration of dynamic modeling and optimization techniques for enhanced performance in robotic systems, with practical implications in manufacturing and logistics.

National FDP on Automation and Smart Manufacturing

April 25 - 29, 2022

Faculty members Mr. T. Suresh and Mr. R. Raffik attended a five-day National Faculty Development Program on "Automation and Smart Manufacturing." The program, organized by IIT Delhi, Automation Industry Association, Anna University Chennai, and Janatics India Pvt. Ltd., provided an in-depth understanding of the latest advancements in industrial automation and smart manufacturing systems, including their practical applications in modern industries.

FDP on Hyperspectral Remote Sensing by ISRO

April 25 - 29, 2022

Dr. A. Vasuki attended a five-day National FDP on "Hyperspectral Remote Sensing," conducted by the National Remote Sensing Centre, ISRO, Hyderabad. The program covered cutting-edge technologies in remote sensing, equipping participants with advanced skills to analyze hyperspectral data for diverse applications in environmental and resource management.

Seminar on Cybercrime Awareness

September 6, 2022

Mr. Sabari Ram (20BMC035) attended a seminar focused on raising awareness about cybercrime and cyber forensics at Kumaraguru College of Technology. The session provided insights into safeguarding digital identities and understanding cyber threats in modern times.

Guest Lecture on Electrify and Automate

September 14, 2022

A guest lecture by Mr. Laxman Subramanian, Global Source Manager at Apple, USA, was organized by Mr. R. Raffik. The lecture highlighted advancements in electric and automated systems, offering students a glimpse into global practices and cutting-edge technologies in mechatronics.



Workshops on Future UAVs and Industrial IoT

September 15, 2022

Students participated in workshops at Sri Krishna College of Engineering and Technology and Aeromodeller Club:

- Mr. Vijay Anandh (21BMC051) attended a workshop on Industrial IoT and Automation.
- Mr. Kathiravan (20BMC018) and Mr. Vineeth (20BMC216) participated in a workshop titled Future on UAVs, gaining insights into the design and application of unmanned aerial vehicles.

Participation in Ansys Academic Innovation Conference

September 16, 2022

Dr. M. Saravana Mohan attended the Ansys Academic Innovation Conference, organized by ARK Info Solutions in Coimbatore. The event showcased the latest innovations and tools in simulation technologies, with applications across engineering disciplines.

Industry Visits to Foster Research and Training

September 19, 2022

Dr. M. Saravana Mohan and the KCT team visited:

- Robotics Research Lab at IIT Madras to explore research opportunities.
- Pravartak Technologies Foundation at IIT Madras Research Park, meeting with Dr. M. J. Shankar Raman, CEO, to discuss projects, internships, and startup support.
- Equad Engineering Services to collaborate on skill training and internship placements.



Guest Lecture on Die Casting Process

September 19, 2022

Mr. K. Murugesan and Mr. J. Sivaguru organized a guest lecture by Mr. Praveen Kumar Ramasamy, Proprietor of Dhaswa Engineering Works, Coimbatore. The session provided III-year students an in-depth understanding of die casting processes and industry applications.



National-Level FDP on Electric Vehicle Simulation

September 23, 2022

Faculty members Dr. B. Sabitha and Mr. P. Magudapathi participated in a week-long Faculty Development Program on electric vehicle simulation using ANSYS at PSG College of Technology, Coimbatore.

Vidiyal – YRC Firefighting Camp

September 22, 2022

Mr. J. Sivaguru coordinated a one-day firefighting camp at Tholampallayam Government Higher Secondary School. The camp introduced students to emergency response techniques and fire safety measures, equipping them with valuable life-saving skills.



Industry Interaction with Whirlpool Corporation

September 19, 2022

Mr. J. Sivaguru met with Mr. Ganesan Ponnusamy, Senior Engineer at Whirlpool Corporation, to discuss collaboration opportunities and the latest industry trends in appliance manufacturing.

Research Contributions

Dr. M. Saravana Mohan published a book chapter in Springer titled “Aluminium–Steel Composite Foam in Joint Dynamic Performance of Redundant Articulated Robot Components.”

Faculty members published seven papers in Scopus-indexed journals, including:

- “Effect of Ni and Si Addition on Electrical and Tribological Behavior of Cu-Zn Alloy” by Mr. R. Saravanan.
- “Optimization of Target Acquisition and Sorting for Multi-Manipulators” by Mr. R. Raffik.

Internships

Multiple students, including Cibi Aravinthan (19BMC027) and Abhishek M (19BMC048), undertook internships at prominent companies like ZOHO, Hirotec India Pvt. Ltd., and IIT Hyderabad, gaining practical industry experience.

Alumni Interactions

Alumni, including Sanjay Vishnu (15BMC030) from Intel and Apoorva Nair (17BMC012) from Continental, visited the department, sharing their professional journeys and inspiring current students.

Participation in National-Level Competitions

October 17-18, 2022

Mr. R. Jairish (21BMC016) represented the department in the SAEISS Dr. G. P. Electric Two-Wheeler Design Competition 2022 held at SRM Institute of Science & Technology, Chennai. The event, organized by SAE India, challenged participants to innovate and design electric vehicles tailored for efficiency and sustainability.

Collaboration with ZF Wind Power

October 20, 2022

Dr. M. Saravana Mohan and the KCT team held discussions with officials from ZF Wind Power at Kumaraguru College of Technology to explore potential collaborations in wind energy technology, including research projects and internships for students.



Workshop on Battery Management

October 20, 2022

Mr. J. Sivaguru attended a workshop on "Intelligent Battery Management for Electron Economy" organized by PSG Tech. The session delved into advancements in battery management systems for sustainable energy solutions.

Social Outreach at Gandhi Memorial

October 28, 2022

Mr. J. Sivaguru organized a visit to Mahatma Gandhi Memorial, Podhanur, accompanied by 59 students. During the visit, he delivered a lecture on Gandhism, emphasizing the relevance of Gandhi's values in modern times and inspiring students to adopt these principles in their lives.

International Paper Presentation

October 30, 2022

Dr. M. Saravana Mohan presented a paper titled "IoT-Based Speed Limiter Accident Avoidance System" at PSG College of Technology during an international-level event. The research proposed IoT-enabled solutions for enhancing road safety through intelligent accident prevention mechanisms.

Social Outreach Program at Othimalai Hills

October 30, 2022

Mr. J. Sivaguru organized a social outreach initiative at Othimalai Hills. The team cleaned up plastic waste in the area and planted tree saplings to promote environmental conservation and community awareness about eco-friendly practices.



Guest Lecture on UHV 1 Training for Mentors

November 5, 2022

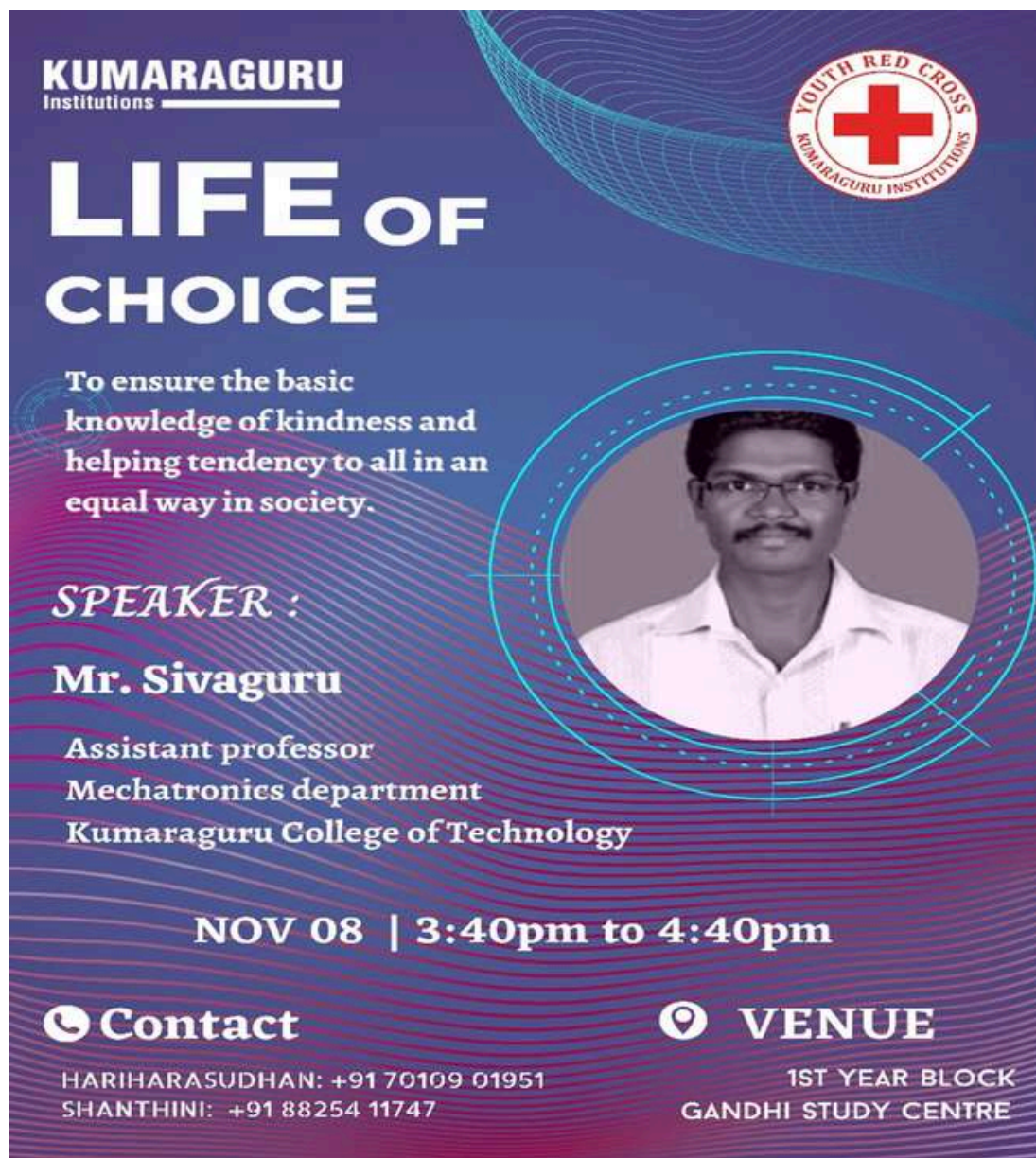
Mr. J. Sivaguru delivered a guest lecture as part of the UHV-1 Training Program for Mentors, conducted by KCT-School of Foundational Sciences. The session provided faculty with in-depth knowledge about Universal Human Values (UHV) systems, focusing on applications in electrical systems and safety protocols. This program aimed at preparing faculty mentors to guide students through advanced electrical engineering concepts.



Guest Lecture on "Life of Choice"

November 8, 2022

Mr. J. Sivaguru conducted a seminar titled "Life of Choice", organized by the YRC at Kumaraguru College of Technology. The session explored how the choices individuals make can shape their personal and professional lives, emphasizing responsibility and proactive decision-making. It encouraged students to reflect on their own life decisions and take ownership of their future paths.



KUMARAGURU
Institutions

LIFE OF CHOICE

To ensure the basic knowledge of kindness and helping tendency to all in an equal way in society.

SPEAKER :

Mr. Sivaguru

Assistant professor
Mechatronics department
Kumaraguru College of Technology

NOV 08 | 3:40pm to 4:40pm

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VENUE
1ST YEAR BLOCK
GANDHI STUDY CENTRE

YOUTH RED CROSS
KUMARAGURU INSTITUTIONS

Guest Lecture on "Opportunities for Startups: An Entrepreneurial Perspective"

November 10, 2022

Mr. R. Saravanan, Mr. K. Murugesan, and Mr. E. Anandh organized a guest lecture by Mr. T. Tamil Inian, Manager at Indian Overseas Bank, Vijayawada. The lecture discussed the prospects and challenges of launching a startup in India, offering insights into the process of securing funding, navigating market risks, and developing a sustainable business model. Students were encouraged to consider entrepreneurship as a viable career option.



Industry Interaction with Schmalz India Pvt. Ltd.

November 17, 2022

Dr. M. Saravana Mohan and Mr. R. Raffik met with Mr. N. Sakthivel, Regional Assistant Manager at Schmalz India Pvt. Ltd. The interaction focused on robotics research, specifically vacuum-based automation systems. Schmalz is a global leader in automation and handling technology, and the meeting explored potential collaboration in applying robotics for industrial applications, offering opportunities for research projects and student internships.



Seminar on Higher Study Opportunities in the UK

November 20, 2022

Mr. J. Sivaguru and Mr. K. Murugesan organized a seminar on “Higher Study Opportunities at UK” in collaboration with Ms. Sandhya N, Assistant Branch Manager of SI-UK, Coimbatore. The session provided detailed information on studying in the UK, focusing on application processes, visa requirements, and scholarship opportunities for Mechatronics students. The seminar aimed to guide students interested in pursuing higher education abroad and explore career prospects in the UK.



Visit to BRD5, Coimbatore for IAF Indigenization Initiatives

November 22, 2022

Dr. M. Saravana Mohan and the KCT-KCIRI team visited BRD5, Coimbatore, to engage with IAF officials about joint initiatives for indigenization. The meeting centered around developing solutions for indigenizing military technologies, with a focus on internships for students and skill development programs. The partnership also explored conducting outreach programs with industry delegates and academic professionals to foster collaboration.

Interaction on EV Compliance for Exports

November 22, 2022

Dr. M. Saravana Mohan participated in a meeting organized by SSEM KCT Institution Chapter with Mr. Rajendra K. Bandal, Vice President Mobility India at TUV Rheinland, Germany. The meeting focused on compliance requirements for the type approval of electric vehicles (EVs) for export markets. Discussions centered around the regulatory standards for EVs and the importance of ensuring compliance for international markets, which is crucial for the future of the EV industry in India.

KCT Faculty Awards at K-Honors 2022

November 23, 2022

Mr. R. Raffik and Dr. B. Sabitha were honored at K-Honors 2022, an event recognizing faculty achievements at Kumaraguru College of Technology. Mr. R. Raffik received an award for his exceptional contributions to extra-curricular and co-curricular activities, while Dr. B. Sabitha was acknowledged with the “Engal Aasan” award for her outstanding role in mentoring and guiding students. These awards highlighted their dedication to both academic excellence and student development.



Additional Highlights

- Ms. R. Nandhitha (19BMC026) achieved a Bronze Medal at the 31st Senior National Wushu Championship 2022 held from October 28 to November 2, 2022, showcasing her dedication and skill in martial arts.
- Ms. Shinny Shalom (21BMC041) earned a Trophy at the Anna University Zone-XI Basketball Women's Championship on November 14, 2022.
- Mr. M. Abhishek (19BMC048) presented his paper on "Comparative Empirical Analysis of Biomimetic Curvy Knee Linked Bipedal Robot" at the Manipal Academy of Higher Education (MAHE) from November 24–26, 2022.
- Several students, including Cibi Aravinthan (19BMC027), Muhsin Al Ramadan (19BMC036), Surya R (19BMC016), continued internships at renowned organizations such as ZOHO, Hirotec India Pvt. Ltd., and IIT Hyderabad.



Publications and Patent

- Dr. M. Saravana Mohan submitted a paper on “Investigation on Joint Dynamic Properties of Nanoclay-Based Redundant SCARA Robot” for publication in a Scopus-indexed journal.
- Mr. R. Raffik published a paper titled “Performance Analysis of Modified Shuttle Mechanism in Polymerized Bag Weaving Circular Loom” in AIP Conference Proceedings.
- Mr. R. Raffik filed a design patent for a “Surveillance Mobile Robot for Hazardous Situations” under application number 202241065131, contributing to the department’s innovative research in robotics.

Publications and Contributions

- Mr. R. Raffik published a paper titled “An AHP-TOPSIS Approach for Optimizing the Mechanical Performance of Natural Fiber-Based Green Composites” in Advances in Materials Science and Engineering.
- Faculty members submitted three papers to Scopus and WoS-indexed journals, reflecting active research participation.

Workshops Attended

- Ms. Mahima Swetha M (20BMC025) completed an online course on the “Design of Fixed Wing UAV” from September 1 to October 29, 2022, gaining expertise in UAV design principles.
- Students Mr. T. Pragadeeswaran (21BMC031) and Mr. B. Madhana Adithya (21BMC025) attended a drone-building workshop during Srishti 2k22, a national-level symposium held at PSG College of Technology.

Editorial Board



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