

MECHATRONICS ENGINEERING

Newsletter
June 2023 - November 2023



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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 excellence 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.

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".

Introduction to 3D Printing Training

20th - 25th August 2023

The Mechatronics Engineering department at KCT organized a 5-day training on 3D Printing, providing hands-on experience in 3D modeling, printing technologies, and practical applications. Students learned key aspects of 3D printing, enhancing their skills in modern prototyping and design, under the guidance of Mr. R. Saravanan



- On 28th August 2023, KCT hosted a one-day outreach program titled "Fostering Innovation & Entrepreneurship: Empowering School Students." The event aimed to inspire young minds to explore innovation and entrepreneurship by providing them with exposure to creative thinking, problem-solving, and entrepreneurial skills. Under the coordination of Mr. J. Sivaguru, the program encouraged school students to engage with innovative concepts, promoting the development of future innovators and entrepreneurs.
- Both Sanjeev K B and KaviBala K participated in the Two Days Software on SolidWorks workshop held at KPR Institute of Engineering and Technology, Arasur, on 9th August 2023 and 10th August 2023. This workshop focused on enhancing skills in SolidWorks, a leading CAD software used for product design and engineering applications.
- Kumaraja G from the Mechatronics Engineering department participated in the NIT Festember competition held at NIT, Tiruchirappalli, on 10th August 2023. This national-level event featured various challenges, where participants showcased their skills. Kumaraja G won a cash prize for his exceptional performance.

- Students Roshan R P (21BMC036), Yogalakshmi, and Vasanth from the Mechatronics Engineering department participated in the Forge Innovation and Ventures competition held at CODISSIA, Coimbatore, on 20th August 2023. This internal event (within KCT) focused on promoting innovative ideas and ventures, providing students with an opportunity to showcase their skills. All three students received awards for their participation.
- Both Ms. A. Yogalakshmi Yazhini and Mr. S. Vasanth, students from the Mechatronics Engineering department, presented their work on a Machine Learning-based air pollution monitoring and forecasting system at the Techno Vista event, held on 9th August 2023 at Sri Eshwar College of Engineering. The presentation focused on leveraging machine learning algorithms to predict and monitor air quality, addressing environmental concerns. The presentation was supervised by Dr. M. Saravana Mohan.
- Students Roshan R P (21BMC036), Yogalakshmi, and Vasanth from the Mechatronics Engineering department participated in the Forge Innovation and Ventures competition held at CODISSIA, Coimbatore, on 20th August 2023. The event focused on promoting innovative ideas and ventures, providing students with an opportunity to showcase their skills. All three students received awards for their participation.

- A workshop on "Industrial Automation & Robotics" was conducted on 6th August 2023. This workshop provided students with an overview of industrial automation systems, including robotics, PLC, SCADA, and other related technologies.
- The Mechatronics Engineering department at KCT organized a one-day workshop on Technology Readiness Level (TRL) for teaching faculty on 30th August 2023. The workshop aimed to familiarize faculty members with the concept of TRL and its significance in evaluating technology development stages. On the same day, Dr. A. Geethakarathi, Associate Professor at KCT, delivered an insightful session on effectively incorporating TRL into academic and research projects. The event was coordinated by Dr. B. Sabitha.
- Our institution interacted with Robotoai Technologies on September 1, 2023, for a one-credit course on Operating Systems. Led by Mr. Rubesh Thirumani S, Director of Robotoai, the course covered key aspects like process management, memory, and security in operating systems. Mr. Rubesh shared valuable industry insights, connecting theoretical knowledge with real-world applications, particularly in robotics and AI. This collaboration enriched students' understanding and prepared them for future challenges in the tech industry.

INDUSTRY LINKAGE

August 10, 2023

Dr. M. Saravana Mohan, HoD/MCE, interacted with Ms. Padmaja, Senior Vice President, Bosch, Cross Computing Division & Mr. M. Sarkanen, CEO, Vista Vista Bosch at Competency Partner Unit Inauguration as an Academic Member at Coimbatore.



On September 1, 2023, our department conducted an industry interaction event in collaboration with Vista @Vista-Bosch. The session, led by Mr. M. Saravanan, CEO of Vista, focused on the significance of connecting academic learning with industry practices. The event provided students with valuable insights into current industry trends and technologies, emphasizing the importance of industry exposure in their professional development.

- On 7th September 2023, Dr. M. Saravana Mohan attended a DAB Meeting at Er. Perumal Manimekalai College of Engineering, Hosur. The meeting focused on discussing strategic plans, curriculum enhancements, and industry collaborations to improve the academic and practical aspects of the Mechatronics Engineering program.
- Mr. A. Ramkumar served as a Panel Member for the Smart India Hackathon (SIH) 2023 held at KCT on 25th September 2023. The event provided a platform for students to showcase innovative solutions to real-world problems. As the Single Point of Contact (SPoC) for SIH 2023 at KCT, Mr. Ramkumar played a key role in guiding and evaluating participants' projects during the hackathon.
- Ajay Abishek B (20BMC002) participated in the Anna University Zonal Badminton Tournament held at SNS College of Technology, Kurumbapalayam, on 10th August 2023 and 26th September 2023. Competing in this national-level event, he demonstrated outstanding performance and received recognition for his achievements in the tournament.
- Mr. K. Murugesan and Mr. P. Magudapathi visited Wheels India, Chennai, on 22nd - 23rd September 2023.
- A two-day Drone Genesis workshop was organized on October 6-7, 2023. This workshop covered the fundamentals of drone assembly and operation, providing students with an introduction to this exciting field

- Dr. M. Saravana Mohan participated in the SMART ECOBIN - Hackathon 2023, held on 15th September 2023 at SRM Institute of Science and Technology, Kattakulathur, Chengalpattu. This national-level hackathon focused on developing innovative solutions for smart waste management systems, with participants presenting ideas related to sustainability and technology. Dr. Saravana Mohan contributed actively in a face-to-face format, collaborating with other participants to address the challenges posed by the event.
- On October 3, 2023, our department collaborated with Kanrad Houseware Pvt. Ltd., Bangalore, on an industrial automation project. The interaction, led by our HoD, Dr. Saravana Mohan, focused on exploring the latest advancements in automation technology and its applications in the industry. This collaboration helped strengthen the connection between academia and industry, providing valuable insights for both students and faculty.
- Dr. M. Saravana Mohan, Head of Mechatronics Engineering, and Mr. K. Murugesan, Assistant Professor of Mechatronics Engineering, organized an industrial visit to M/s. Sri Sairam Auto Components, Coimbatore, for the students of Mechatronics Engineering on 27th October 2023.

AICTE-Approved 3-Day Face-to-Face Introductory FDP on Universal Human Values (UHV)

5th - 7th October 2023

The Mechatronics Engineering department conducted a 3-day AICTE-approved Faculty Development Program (FDP) on Universal Human Values (UHV) from 5th to 7th October 2023. The program aimed to introduce faculty members to the foundational principles of UHV, fostering ethical, humanistic, and value-based education. The FDP provided participants with practical insights into integrating UHV into teaching and learning processes, promoting a holistic educational environment.



Industrial Interaction with Kanrad Houseware Pvt Ltd.

October 26, 2023

- Dr. M. Saravana Mohan, Head/Mechatronics Engineering and team from Kumaraguru Institutions visited Kanrad Houseware Pvt Ltd., Bangalore for Industrial automation project collaboration.



- Mr. R. Raffik from the Mechatronics Engineering department has filed a patent for a "Robotics System for the Detection of Lead Element Absorption in Agricultural Soil through Internet of Things (IoT)." The system aims to revolutionize agricultural practices by detecting the presence of lead contamination in soil using robotic technology and IoT, contributing to better soil management and environmental protection. The patent was officially registered on 27th October 2023.

- Dr. M. Saravana Mohan, Head of Mechatronics Engineering, and Mr. K. Murugesan, Assistant Professor of Mechatronics Engineering, along with 61 students from the Mechatronics Engineering department, visited M/s. SP Balaji, Tirupur, on October 22, 2023. The industrial visit aimed to provide students with practical insights into the casting process, enhancing their understanding of real-world manufacturing techniques.
- Students of the Mechatronics Engineering department visited M/s. Sri Sairam Auto Components, Coimbatore, on October 27, 2023, to gain practical knowledge about the manufacturing process of automotive components. The visit provided valuable insights into industry practices, production techniques, and quality control measures in the automotive sector.
- The Mechatronics Engineering department at Kumaraguru College of Technology (KCT) organized a National-level Faculty Development Program (FDP) on 3D Printing Technology on 8th October 2023. The program aimed to provide faculty members with advanced knowledge in 3D printing, covering the latest innovations, applications, and techniques in the field. Dr. K. Akila served as the program coordinator, ensuring insightful discussions and a productive learning experience for the participants.

- Dr. M. Saravana Mohan, Head of Mechatronics Engineering, along with Masters of Kumaraguru Institutions, visited Middlesex University and De Montfort University from October 16 to 26, 2023. The visit aimed to study the academic system and industrial interaction at these universities, fostering potential collaborations and enhancing educational methodologies.



- Dr. M. Saravana Mohan, Head of Mechatronics Engineering, along with Masters of Kumaraguru Institutions, visited Middlesex University and De Montfort University from October 2 to 7, 2023. The visit aimed to study the academic system and industrial interaction at these universities, fostering potential collaborations and enhancing educational methodologies.



- Dr. S. A. Pasupathy was granted a patent for the "Mineral Board Composition and Preparation Method Thereof." The patent was officially issued on 15th November 2023, recognizing the innovative method for preparing a mineral-based board composition. This technology offers enhanced materials for construction and other industrial applications, demonstrating Dr. Pasupathy's contributions to advancing material sciences.
- Mohamed Sahan A. S, a student from the Mechatronics Engineering department, published a research paper titled "Role of Cobots over Industrial Robots in Industry 5.0" in an international journal indexed by Scopus on 29th November 2023. The paper explores the emerging role of collaborative robots (cobots) in the context of Industry 5.0, highlighting their contribution to enhancing human-robot collaboration in industrial settings. This publication showcases his research and insights into modern advancements in automation and robotics.

- We are pleased to announce that Mohmad Sahan A S, a student from our department (Roll No. 20BMC026), has secured an internship at Cameron Manufacturing India Pvt. Ltd. from November 7, 2023, to January 9, 2024. During this internship, Sahan will gain valuable hands-on experience in manufacturing processes. We congratulate him on this achievement and wish him continued success during this internship.
- We are pleased to announce that Nitish R S, a student from our department (Roll No. 20BMC031), has completed an internship at Craftsman Automation Limited from September 28, 2023, to October 16, 2023. During this internship, Nitish gained valuable industry experience in automation and manufacturing processes. We congratulate him on this achievement and look forward to his continued growth in the field.
- We are happy to announce that Kavyashree T, a student from our department (Roll No. 20BMC019), completed an internship at Bommasanda Industrial Area from July 8, 2023, to July 31, 2023. During her internship, Kavyashree gained practical experience in industrial processes and was awarded a stipend of ₹10,000. We congratulate her on this achievement and wish her continued success in her career.
- We are pleased to announce that Rohith Bala S, a student from our department (Roll No. 21BMC035), completed an internship at Alstom Transport India Limited from October 7, 2023, to October 8, 2023. During this short-term internship, Rohith gained valuable insights into the transportation and engineering sectors. We congratulate him on this accomplishment and look forward to his continued success in the field.

- We are pleased to announce that Pragadeeswaran T, a student from our department (Roll No. 21BMC031), completed an internship at Titan Engineering & Automation Ltd. from September 18, 2023, to September 23, 2023. During this short-term internship, Pragadeeswaran gained hands-on experience in engineering and automation, contributing to his academic and professional growth. We congratulate him on this achievement and wish him continued success in his career.

Editorial Board



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EDITOR



Mr. K. Murugesan
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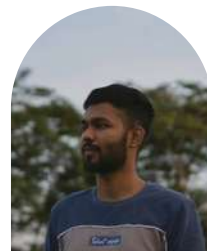
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