



**K. RAMAKRISHNAN
COLLEGE OF ENGINEERING**

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Accredited by NAAC with 'A' Grade | NBA Accredited Departments



DEPARTMENT OF

MECHANICAL ENGINEERING

KRCExpress

PERSISTENCE TOWARDS PASSION



Vol. II Issue 6



Magazine 2023-24



Together We Engineer The Future



LEADERSHIP MESSAGES



CHAIRMAN MESSAGE

The Department of Mechanical Engineering at K Ramakrishnan College of Engineering is dedicated to shaping innovative and skilled engineers through quality education, practical exposure, and research excellence. The department strives to empower students with technical knowledge, professional ethics, and leadership skills to meet global industrial challenges and contribute effectively to society.

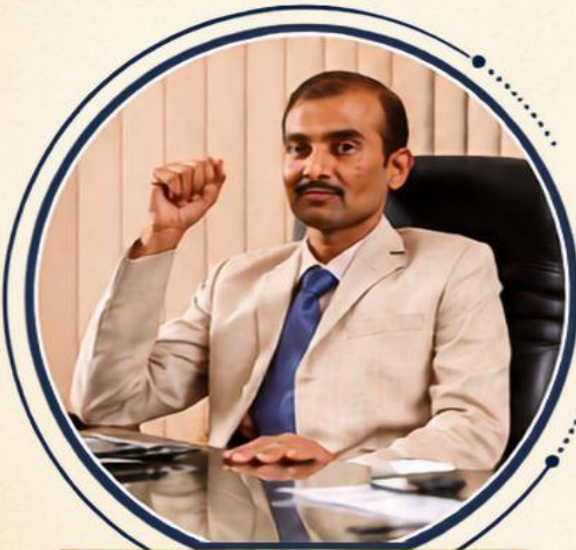


DR. K. RAMAKRISHNAN
CHAIRMAN – KR Group



EXECUTIVE DIRECTOR'S MESSAGE

The Department of Mechanical Engineering at K. Ramakrishnan College of Engineering is committed to academic excellence, innovation, and industry-oriented learning. With advanced laboratories, experienced faculty, and a strong research culture, the department prepares students to become competent mechanical engineers with technical expertise, ethical values, and leadership skills to excel in their careers and serve society.



DR. S. KUPPUSAMY
EXECUTIVE DIRECTOR –
KR GROUP

★ LEADERSHIP MESSAGES ★



PRINCIPAL'S MESSAGE

The Department of Mechanical Engineering at K. Ramakrishnan College of Engineering plays a vital role in shaping technically proficient and innovative engineers. The department focuses on delivering quality education through modern laboratories, experienced faculty, and research-driven learning. It strives to equip students with technical knowledge, practical skills, and ethical values to meet industrial challenges and emerge as successful professionals who contribute meaningfully to society.



DR. D. SRINIVASAN
PRINCIPAL - KRCE

HOD'S MESSAGE

Welcome to the Department of Mechanical Engineering. Our mission is to bridge the gap between academic excellence and industrial requirement. Through our state-of-the-art laboratories and robust industry partnerships, we ensure our students gain the technical proficiency and practical experience necessary for a successful career. We take pride in our commitment to developing disciplined, competent, and ethical professionals who contribute meaningfully to the engineering community and society at large.



DR. H. RAMAKRISHNAN
HOD / MECHANICAL



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STUDENT
EXCELLENCE



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IV Year
B.E. Mechanical Engineering

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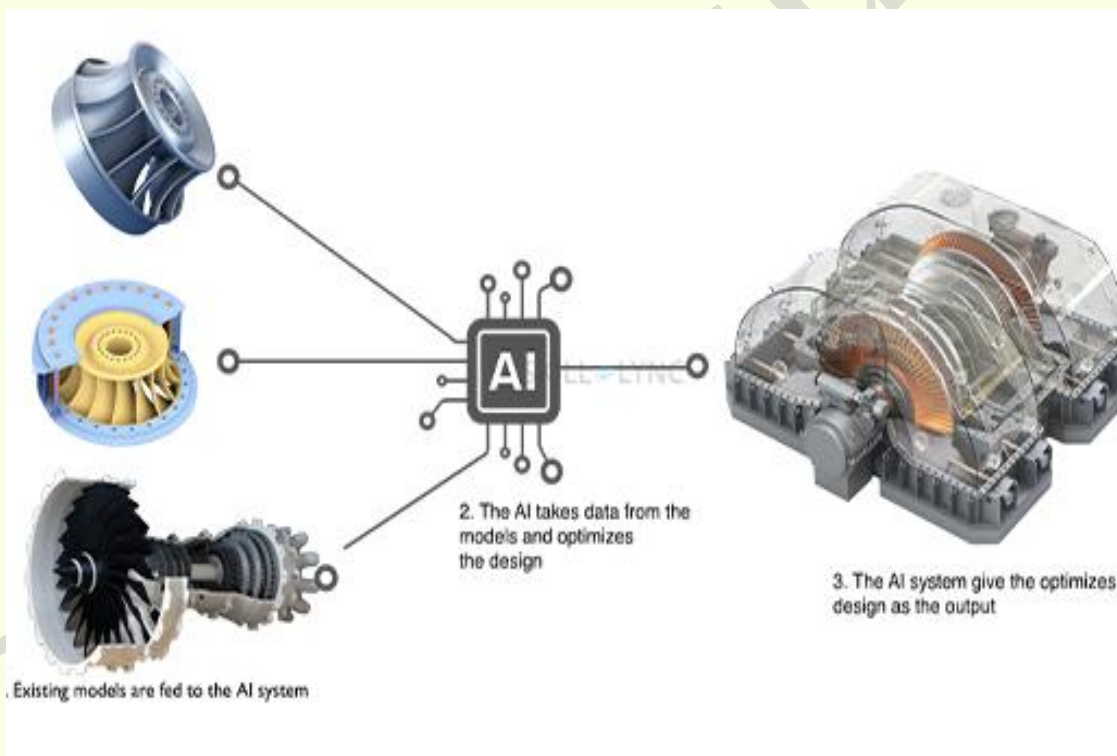
III Year
B.E. Mechanical Engineering

A magazine is a reflection of the department's achievements, innovations, and aspirations. Through this publication, we celebrate academic excellence, research contributions, student accomplishments, and the collective efforts of our Mechanical Engineering family.

TECHNICAL REPORT

AI FOR DESIGN OPTIMIZATION IN MECHANICAL ENGINEERING

The application of Artificial Intelligence (AI) in optimizing mechanical component design. Existing component models, such as turbine blades, impellers, and rotating machinery, are provided as input to the AI system. Using advanced machine learning algorithms, AI analyzes geometric features, material properties, operating conditions, stress distribution, and historical performance data. It rapidly evaluates thousands of design alternatives to identify the most efficient configuration while satisfying engineering constraints. AI-driven optimization reduces component weight, improves structural strength, enhances thermal performance, and minimizes material usage without compromising reliability.



The optimized design is then generated as the final output, enabling engineers to achieve superior performance with reduced development time and cost. This intelligent design approach supports Computer-Aided Design (CAD), Finite Element Analysis (FEA), Computational Fluid Dynamics (CFD), and Digital Twin technologies, making product development faster and more accurate. AI-assisted design optimization is widely applied in aerospace,

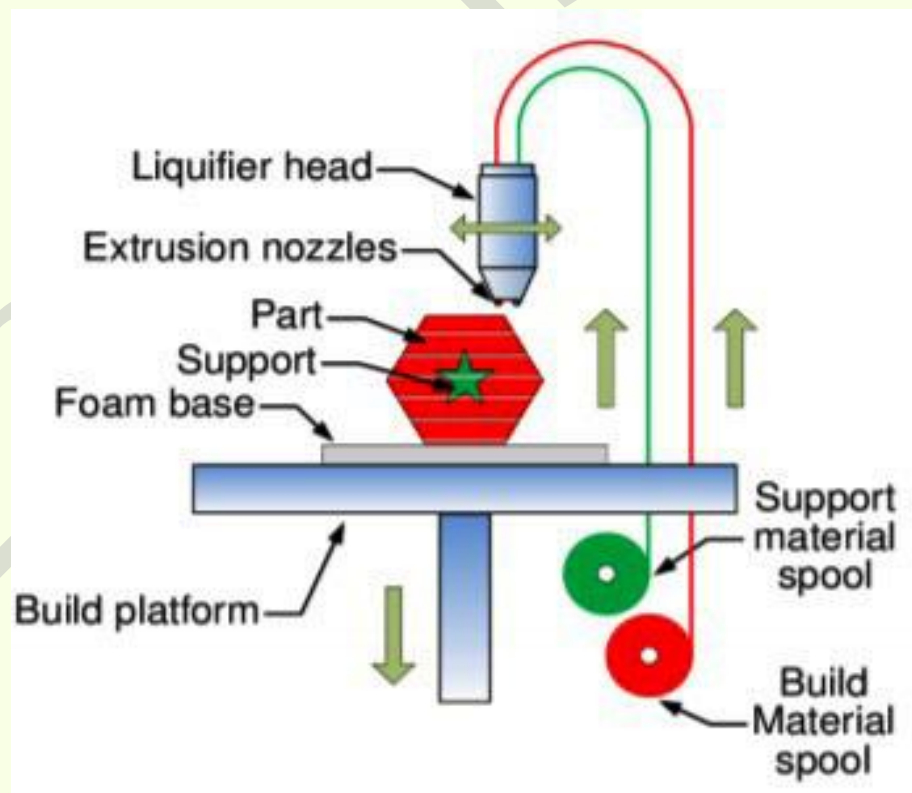
automotive, power generation, manufacturing, and renewable energy industries. By integrating AI into mechanical engineering design, industries can improve product quality, increase operational efficiency, promote sustainable manufacturing, and accelerate innovation in the era of Industry 4.0 and Industry 5.0.

DHANABALANATHAN V

III YEAR / MECHANICAL

ADDITIVE MANUFACTURING (3D PRINTING)

Additive Manufacturing (AM), commonly known as 3D Printing, is an advanced manufacturing process that builds three-dimensional components layer by layer from a digital CAD model. Unlike conventional manufacturing methods, it adds material only where required, reducing waste and improving production efficiency. The process begins with designing a 3D model using CAD software, which is converted into an STL file and sliced into thin layers. A 3D printer then fabricates the component using materials such as plastics, metals, ceramics, or composites.



Additive manufacturing is widely used in mechanical engineering for rapid prototyping, product development, tooling, lightweight component manufacturing, and customized part production. Industries such as aerospace, automotive, biomedical, defense, and energy utilize this technology to manufacture complex parts with high precision and reduced lead time. It supports innovative designs that are difficult to produce using conventional machining processes.

The major advantages of additive manufacturing include reduced material waste, shorter production time, lower tooling costs, design flexibility, lightweight structures, and mass customization. It also promotes sustainable manufacturing by minimizing energy consumption and raw material usage. However, challenges such as high equipment costs, limited material availability, slower production for mass manufacturing, and post-processing requirements still exist.

With the integration of Artificial Intelligence (AI), Digital Twins, IoT, and Industry 4.0, additive manufacturing is becoming smarter and more efficient. AI helps optimize printing parameters, detect defects, and improve product quality in real time. As technology continues to advance, additive manufacturing is expected to play a crucial role in the future of intelligent, sustainable, and high-performance mechanical engineering, enabling faster innovation and more efficient industrial production.

MATTHEW NITHILAN P

II TEAR / MECHANICAL

STUDENTS PRIZE AWARDS

The Department of Mechanical Engineering proudly congratulates Mr. P. Ragul, IV Year, on his remarkable achievement of being recognized by the India Book of Records for contributing to the maximum number of national and international patents along with fellow students of K. Ramakrishnan College of Engineering. His outstanding contribution towards 20 patents, including 16 National Patents and 4 International Patents, reflects his exceptional innovative thinking, technical expertise, research aptitude, and commitment to solving real-world engineering challenges.



MSME IDEA HACKATHON 3.0

The Department of Mechanical Engineering, K. Ramakrishnan College of Engineering, proudly celebrates the remarkable achievement of the “Smart Painting Technology” project, which secured a prestigious grant of ₹13.5 Lakhs under the MSME Idea Hackathon 3.0 scheme, an initiative of the Ministry of Micro, Small and Medium Enterprises (MSME), Government of India. This significant accomplishment reflects the department's strong commitment to fostering innovation, entrepreneurship, and research-driven engineering solutions. The project was developed by Ms. R.P. Janagi R. Deva, Final Year Mechanical Engineering student, under the guidance of Mr. M. Manimaran, Assistant Professor, Department of Mechanical Engineering, whose continuous mentorship and technical expertise played a vital role in the successful development of the innovative concept.



The Smart Painting Technology project focuses on developing an intelligent and automated painting system that enhances painting quality, improves operational efficiency, minimizes material wastage, reduces human exposure

to hazardous environments, and promotes safer industrial painting practices. By integrating automation and advanced engineering concepts, the project aims to address real-world industrial challenges while supporting the vision of smart manufacturing and Industry 4.0.



On this proud occasion, Dr. K. Ramakrishnan, Chairman, K. Ramakrishnan Educational Institutions, conveyed his heartfelt congratulations to the student innovator and faculty mentor for bringing national recognition to the institution. He appreciated their dedication, creativity, and perseverance in transforming an innovative idea into a funded project and encouraged students to actively participate in research, innovation, and entrepreneurship initiatives. He emphasized that such achievements reflect the institution's vision of nurturing globally competent, innovative, and industry-ready engineers capable of contributing to technological advancement and national development.

The Department of Mechanical Engineering extends its sincere appreciation to the management, faculty members, and mentors whose constant encouragement and support made this accomplishment possible. This prestigious MSME grant stands as a testament to the department's vibrant research culture and commitment to promoting innovation, inspiring students to pursue impactful engineering solutions that benefit society and industry.

K.RAMAKRISHNAN
COLLEGE OF ENGINEERING
An Autonomous Institution

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14001:2015 Certified Institution, Accredited with A grade by NAAC

QS I-GAUGE | NBA | NAAC | INSTITUTION'S INNOVATION COUNCIL | nirf-Innovation

RESEARCH AND DEVELOPMENT CELL

Hearty Congratulations!!!

13.5 Lakhs !!!
Approved for
Mechanical Department
MSME Idea Hackathon 3.0 (Women) scheme

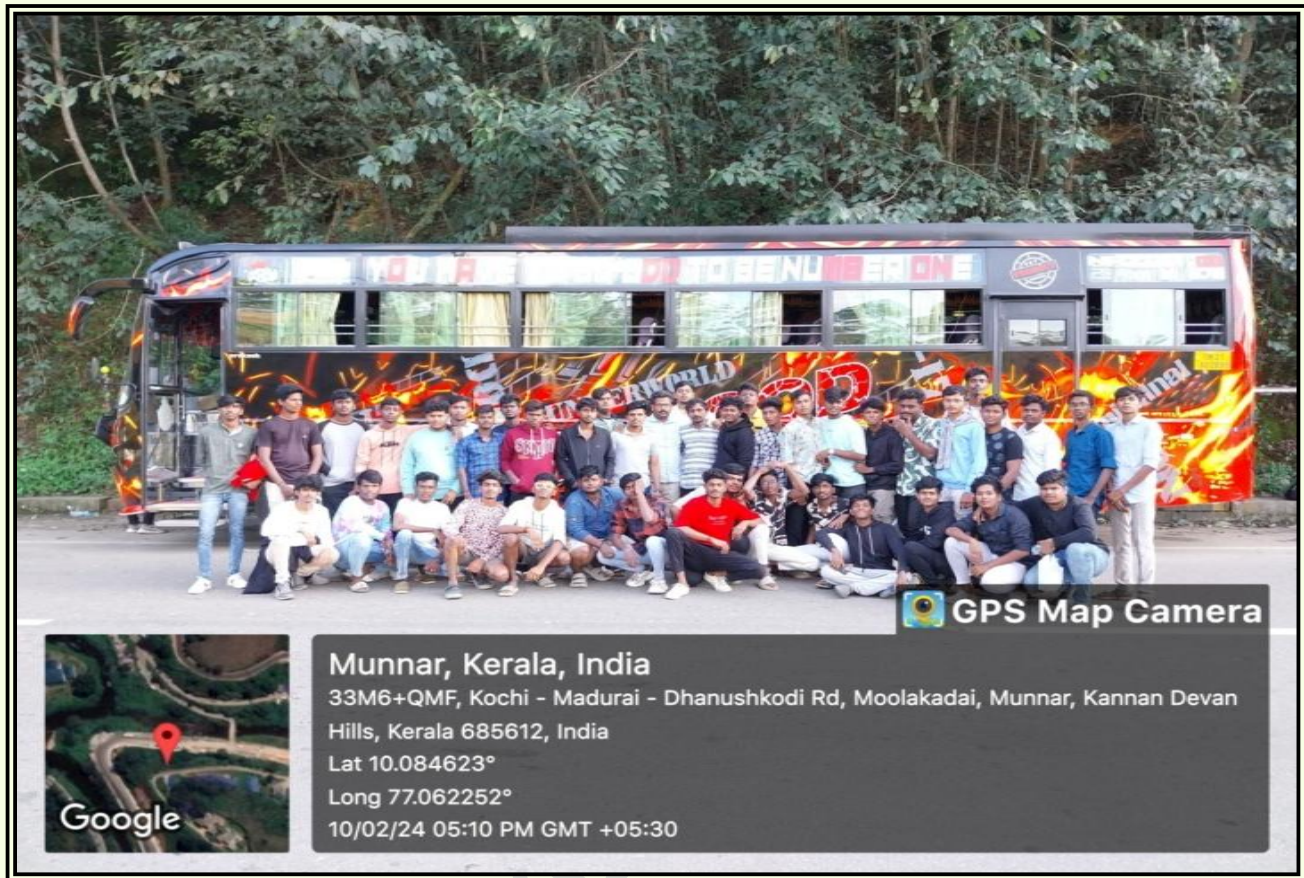
SMART PAINTING TECHNOLOGY

Incubatee - Ms. JAANAGI R P
IV/Mech

Incubatee - Mr. DEVA R
IV/Mech

Mentor - Mr. M. Manimaran
AP/Mech

INDUSTRIAL VISIT WITH HOLIDAYS TOUR



The Department of Mechanical Engineering organized an industrial visit to the Tea Factory and Tea Museum at Munnar, Kerala. The visit provided students with an opportunity to gain practical exposure to the tea manufacturing process and understand the industrial practices followed in one of India's renowned tea-producing regions. Munnar is famous for its vast tea plantations and tea-processing industries.

During the visit, students observed the complete tea production process, including withering, rolling, fermentation, drying, grading, and packaging. They also witnessed the operation of various processing machines and learned about quality control measures adopted in the industry. The Tea Museum showcased the history and evolution of tea cultivation in Munnar through antique machinery, photographs, and historical exhibits.



The industrial visit helped students bridge the gap between theoretical knowledge and industrial applications. It enhanced their understanding of manufacturing systems, process engineering, maintenance practices, and industrial management. The visit also encouraged students to explore career opportunities in process industries and understand the importance of sustainable production practices.

INDUSTRIAL VISIT

The Department of Mechanical Engineering organized a one-day industrial visit to Tool Fab Industries, Tiruchirappalli, on 08 February 2024. The visit aimed to provide students with practical exposure to fabrication, manufacturing processes, welding techniques, quality control procedures, and industrial production practices followed in modern engineering industries.

During the visit, students observed various stages of fabrication and assembly operations. Industry experts explained the manufacturing workflow, material handling procedures, fabrication of structural components, welding operations, inspection techniques, and safety measures adopted in the plant. Students were also introduced to industrial standards,

production planning, and quality assurance practices followed in engineering fabrication industries.



The interaction with industry professionals enabled students to understand the practical challenges involved in manufacturing and fabrication processes. The visit helped bridge the gap between classroom learning and real-world industrial applications, thereby enhancing students' technical knowledge and professional awareness.

Department of Mechanical Engineering celebrated Ayudha Pooja with great enthusiasm and devotion on 01 October 2022. The celebration was organized to honor the tools, machines, equipment, and instruments that play a vital role in engineering education and industrial practice.

Faculty members, staff, and students actively participated in the event. Special poojas were performed for laboratory equipment, workshop machines, computers, and other technical resources used for teaching,

learning, and research activities. The event emphasized the importance of respecting the tools and technologies that contribute to professional growth and productivity.

The celebration provided an opportunity for students to understand the cultural significance of Ayudha Pooja and its relevance to the engineering profession. It also fostered a sense of gratitude, unity, and responsibility among students and faculty members.

ALUMNI MEET"2024

The Department of Mechanical Engineering, K. Ramakrishnan College of Engineering, successfully organized Alumni Meet 2024 on 13 April 2024 at the Conference Hall, KRCE. The event brought together alumni from various graduating batches, providing a wonderful opportunity to reconnect with their alma mater, faculty members, and fellow graduates.

The gathering served as a platform for alumni to share their professional experiences, career achievements, and industry insights with current students and faculty members. The interaction helped strengthen the bond between the institution and its alumni while fostering networking opportunities and knowledge exchange.





During the event, alumni reflected on their memorable college days and expressed their gratitude towards the faculty and institution for shaping their careers. The department also showcased its recent academic achievements, research activities, student accomplishments, and future development plans. Alumni offered valuable suggestions for curriculum enhancement, industry collaboration, internships, and placement opportunities.

CULTURAL WINNERS

The Department of Mechanical Engineering proudly secured the Overall Runner-Up Trophy in Talentia 2024, the annual cultural and talent extravaganza of K. Ramakrishnan College of Engineering. The achievement reflects the extraordinary talents, enthusiasm, and teamwork displayed by the students across various cultural and artistic events.

Throughout the competition, Mechanical Engineering students actively participated in numerous events, showcasing their excellence in dance, music, fine arts, stage performances, literary activities, and other creative competitions. Their consistent performances, dedication, and determination

enabled the department to accumulate significant points and emerge as the Overall Runner-Up among all participating departments.



The achievement stands as a testament to the department's commitment to holistic student development, encouraging students to excel not only in academics and technical activities but also in cultural and extracurricular pursuits. The students' remarkable efforts, supported by faculty members and coordinators, brought pride and recognition to the department.

MR.TALENTIA'24

The Department of Mechanical Engineering proudly congratulates Mr. Sivaprasanna on being crowned Overall Mr. Talentia 2024, one of the most prestigious titles awarded during the annual Talentia 2024 cultural festival. This remarkable achievement reflects his exceptional talent, unwavering dedication, and outstanding all-round performance across various events conducted during the festival.

Mr. Sivaprasanna demonstrated excellence through his confidence, creativity, stage presence, and competitive spirit, distinguishing himself among participants from different departments. His ability to consistently perform at a high level in multiple events earned him the admiration of the judges and the appreciation of the college community. Winning the coveted Overall Mr. Talentia 2024 title is a testament to his perseverance, hard work, and commitment to achieving excellence beyond academics.

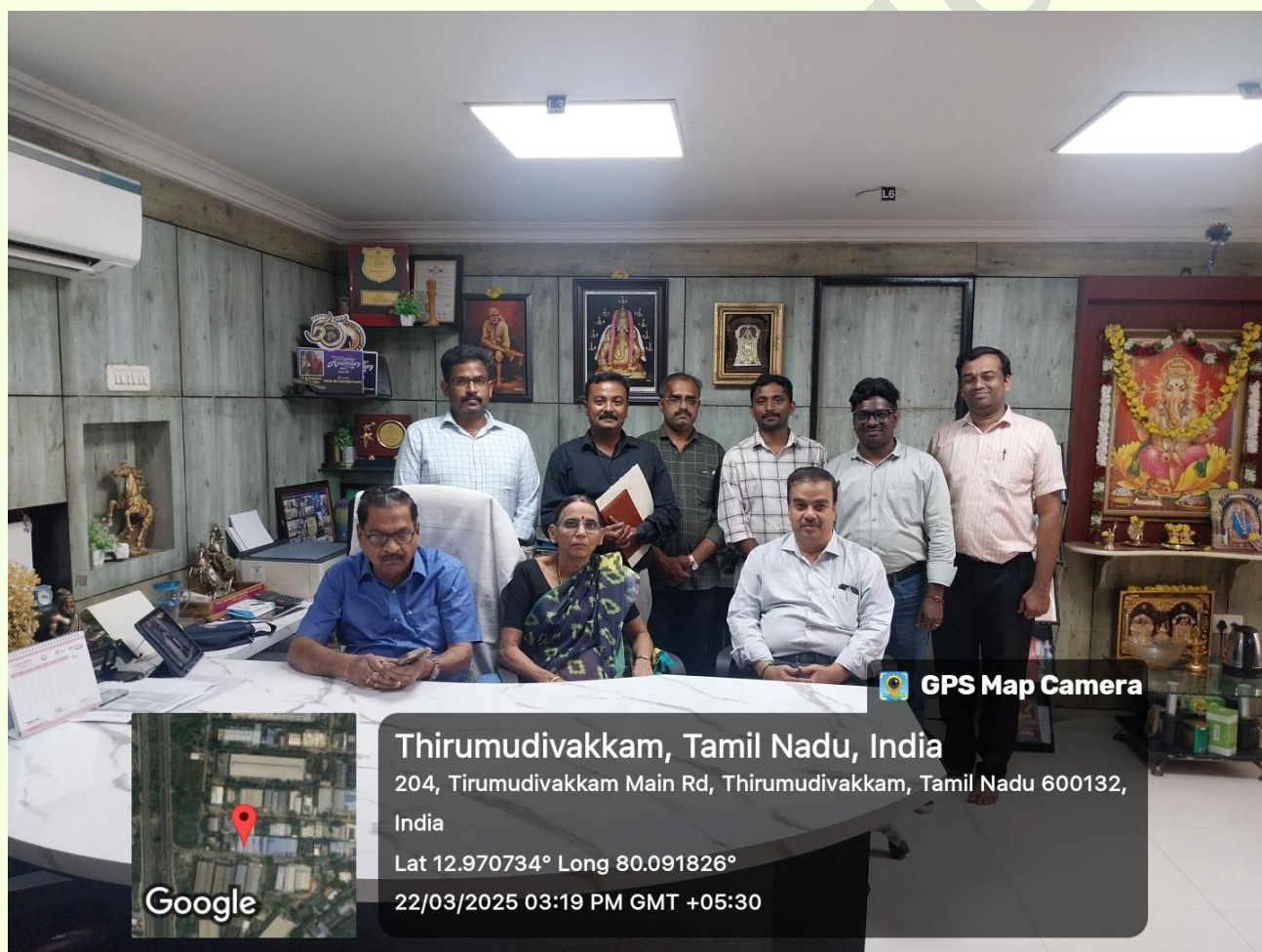


Talentia serves as a platform for students to showcase their diverse talents, leadership qualities, and interpersonal skills. Mr. Sivaprasanna made the most of this opportunity by exhibiting remarkable versatility and enthusiasm throughout the competition. His success not only highlights his individual capabilities but also reflects the vibrant and talented student community of the Department of Mechanical Engineering.

FACULTY INDUSTRIAL VISIT

The Department of Mechanical Engineering organized an Industrial Visit and Industry Interaction Programme to Excel Die Castings, Thirumudivakkam, Chennai, on 22nd March 2025. The visit was undertaken to strengthen industry-academia collaboration and to explore opportunities for student training, internships, industrial projects, and skill development activities.

The visit was led by Dr. D. Srinivasan, Principal, and Dr. H. Ramakrishnan, Head of the Department of Mechanical Engineering, accompanied by six faculty members from the department. The delegation was warmly received by the management and technical team of Excel Die Castings.



During the visit, the faculty team had detailed discussions with the industry representatives regarding the latest trends and advancements in die casting technology, manufacturing processes, quality control systems, automation practices, and

industrial production management. The interaction provided valuable insights into modern manufacturing practices, industrial requirements, and emerging technologies adopted in the die-casting industry.



The management of Excel Die Castings explained their manufacturing capabilities, production facilities, quality assurance procedures, and research and development activities. Discussions were also held on establishing collaborative initiatives such as industrial training programmes, internships, industrial visits for students, consultancy projects, guest lectures, and industry-supported research activities.

The visit offered an excellent opportunity for faculty members to understand current industrial practices and identify potential areas for academic and research collaboration. The interaction strengthened the relationship between the institution and industry, paving the way for future partnerships that will benefit both faculty and students of the Mechanical Engineering Department.

The Department of Mechanical Engineering expresses its sincere gratitude to the management and technical experts of Excel Die Castings for their hospitality, valuable interactions, and support in promoting industry-academia collaboration. The visit was highly informative and successful in enhancing industrial exposure and fostering professional relationships.



MENTORING SESSION BY CONSERVE ACADEMY

The Department of Mechanical Engineering organized a Mentoring Session for the III Year Mechanical Engineering students on 26th April 2024. The session was conducted by Mr. Stanley from Conserve Academy, Konalai, Tiruchirappalli, with the objective of enhancing students' professional competencies, career awareness, and industry preparedness.

During the session, Mr. Stanley shared valuable insights on the importance of technical skills, communication abilities, problem-solving techniques, and continuous learning for achieving success in the engineering profession. He emphasized the need for students to develop industry-relevant competencies and adapt to emerging technologies and changing industrial requirements.



The mentoring programme covered various aspects, including career planning, higher education opportunities, placement preparation, aptitude development, interpersonal skills, and professional ethics. The resource person also discussed the current trends in the manufacturing and engineering sectors and highlighted the importance of innovation, teamwork, and lifelong learning.

The session was highly interactive, with students actively participating in discussions and seeking guidance on career opportunities, skill enhancement, and professional development. The practical experiences and motivational insights shared by the mentor provided students with a better understanding of industry expectations and future career prospects.

The mentoring session proved to be highly beneficial for the III Year Mechanical Engineering students by motivating them to strengthen their technical knowledge, improve their employability skills, and prepare themselves for successful careers in the engineering field. The Department of Mechanical Engineering expresses its sincere gratitude to Mr. Stanley, Conserve Academy, Konalai, Tiruchirappalli, for his valuable contribution and support towards the academic and professional development of the students.

FAREWELL CEREMONY

The Farewell Ceremony for the Mechanical Engineering Batch (2020–2024) was organized with great enthusiasm and joy by the Department of Mechanical Engineering. The event served as a memorable occasion to celebrate the academic journey, achievements, and cherished moments of the outgoing students as they prepared to embark on their professional careers and higher education pursuits.

The programme brought together final-year students, junior students, faculty members, and department staff in an atmosphere filled with happiness, gratitude, and nostalgia. Various cultural events, entertainment programmes, interactive sessions, and fun activities were organized to make the occasion memorable for all participants.



Faculty members shared their experiences and conveyed their best wishes to the graduating students, encouraging them to uphold the values of professionalism, integrity, and lifelong learning. The students reflected on their academic journey, expressing their gratitude to the faculty members, mentors, and friends who supported them throughout their four years of study in the department.

SPORTS ACHIEVEMENTS

The Department of Mechanical Engineering proudly congratulates Mr. Mohammed Sameer for his outstanding participation and for securing the Runner-Up Position in the Football Tournament conducted by SRM TRP Engineering College. His dedication, exceptional sportsmanship, and consistent performance on the field reflect his determination, teamwork, and competitive spirit. This remarkable achievement has brought pride and recognition to the department and the institution. We appreciate his commitment to balancing academic excellence with sporting achievements and wish him continued success in all his future endeavors.



Heartiest Congratulations, Mohammed Sameer! Your achievement is a testament to your hard work, discipline, and team spirit. Wishing you many more victories and continued success in the years ahead. Keep striving, keep achieving!