



**K. RAMAKRISHNAN
COLLEGE OF ENGINEERING**

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DEPARTMENT OF

MECHANICAL ENGINEERING

KRCExpress

PERSISTENCE TOWARDS PASSION



Vol. II Issue 3



Magazine 2022-23



QUALITY
EDUCATION



RESEARCH &
INNOVATION



INDUSTRY
COLLABORATION



STUDENT
EXCELLENCE



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.



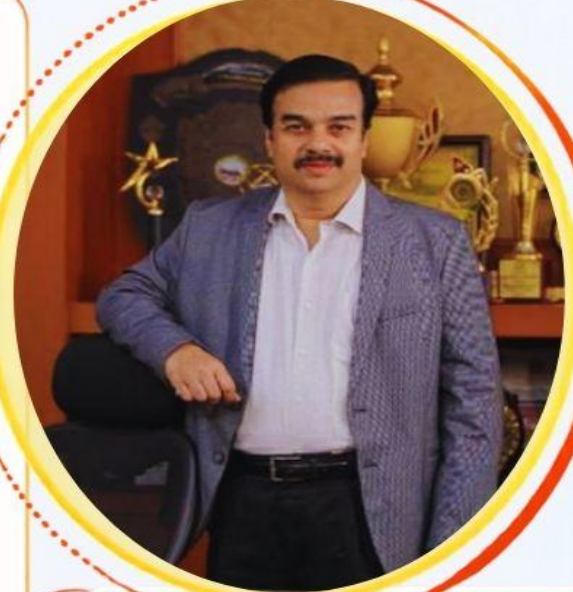
DR. S. KUPPUSAMY
EXECUTIVE DIRECTOR –
KR GROUP

★ 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.



Mr. H. Ramakrishnan
HOD / MECHANICAL



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DEPARTMENT OF MECHANICAL **KRC Express**

Persistence towards Passion



K. RAMAKRISHNAN
COLLEGE OF ENGINEERING

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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.

DEPARTMENT OF MECHANICAL ENGINEERING

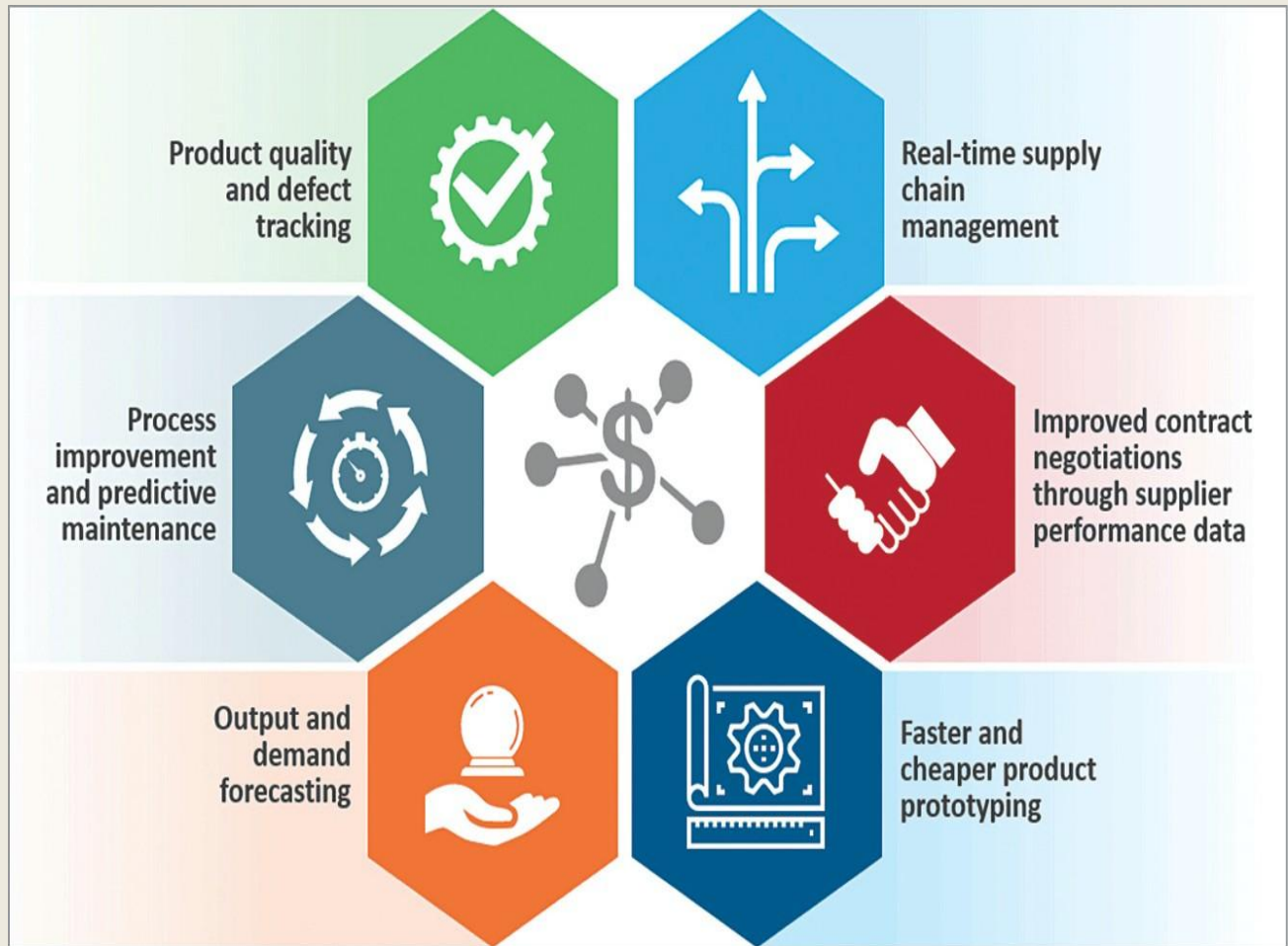
KRCExpress – Persistence Towards Passion

SMART MANUFACTURING AND INDUSTRY 4.0 TECHNOLOGIES

Smart Manufacturing and Industry 4.0 technologies in enhancing manufacturing efficiency, product quality, and supply chain performance. By integrating digital technologies such as the Internet of Things (IoT), Artificial Intelligence (AI), Big Data Analytics, Cloud Computing, and Automation, industries can achieve higher productivity, improved decision-making, and sustainable manufacturing practices.

One of the key applications is Product Quality and Defect Tracking, where real-time monitoring systems and intelligent sensors continuously inspect products to detect defects at an early stage, thereby reducing waste and ensuring consistent product quality. Real-time Supply Chain Management enables manufacturers to monitor inventory, logistics, and production schedules, ensuring timely delivery of materials and finished products while minimizing operational delays.

Data-driven insights also support Improved Contract Negotiations through Supplier Performance Data, allowing organizations to evaluate supplier reliability, quality, and delivery performance for better procurement decisions. Another important application is Faster and Cheaper Product Prototyping, achieved through advanced technologies such as Computer-Aided Design (CAD), simulation tools, digital twins, and additive manufacturing (3D printing). These technologies significantly reduce product development time, lower manufacturing costs, and accelerate innovation.



Overall, these interconnected technologies transform conventional manufacturing into intelligent, data-driven production systems capable of delivering higher efficiency, superior product quality, reduced operational costs, and enhanced customer satisfaction. The adoption of smart manufacturing practices enables industries to remain competitive in the era of digital transformation while supporting sustainable industrial growth and continuous innovation.

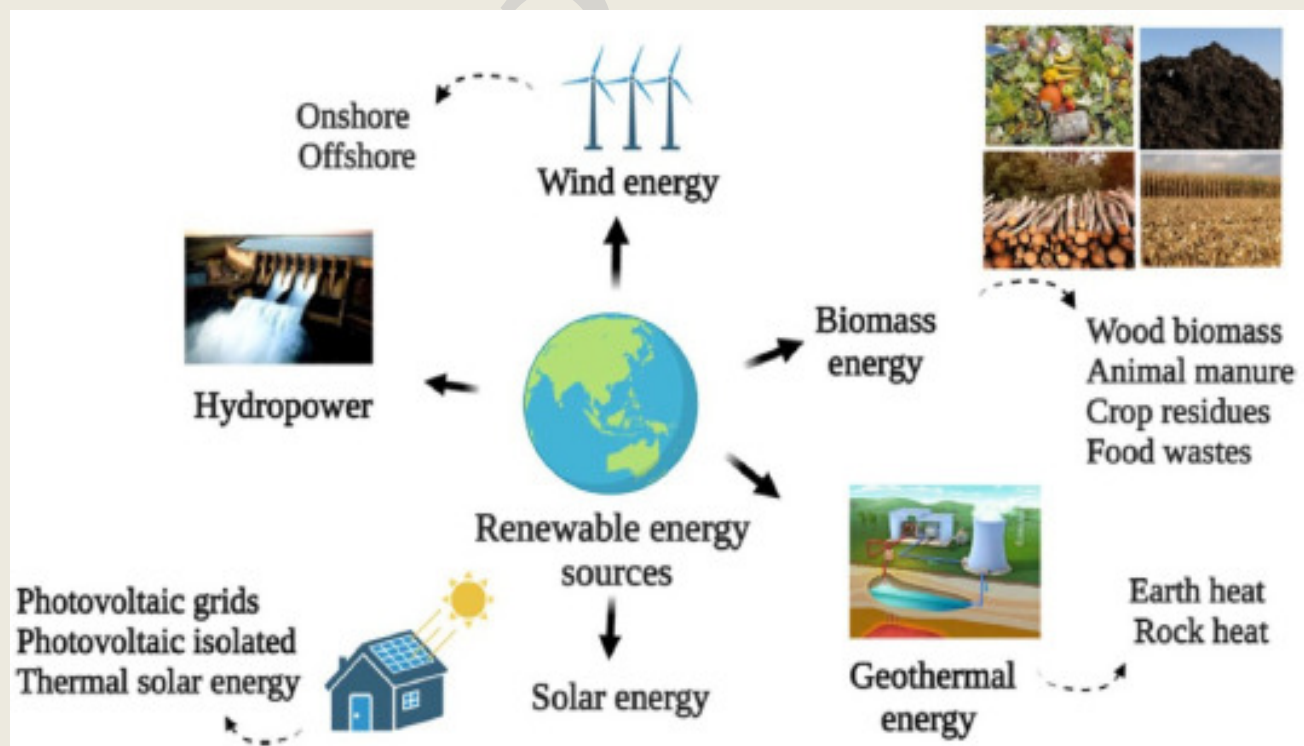
TANMAI S N

III YEAR / MECHANICAL

ADVANCEMENTS IN RENEWABLE ENERGY TECHNOLOGIES

Renewable energy plays a vital role in achieving sustainable development by reducing dependence on fossil fuels and minimizing environmental pollution. Major renewable energy sources include solar, wind, hydro, biomass, geothermal, and tidal energy, each contributing to clean and reliable power generation. Recent technological advancements have significantly improved the efficiency, reliability, and affordability of these energy systems.

Solar photovoltaic (PV) technology has advanced through high-efficiency solar cells, bifacial panels, and Maximum Power Point Tracking (MPPT), resulting in greater energy output. Wind energy systems now utilize larger turbines, advanced blade designs, and offshore installations to enhance electricity generation. Biomass converts agricultural and organic waste into useful energy, while hydropower, geothermal, and tidal energy provide stable and sustainable electricity.



A major development in renewable energy is the integration of energy storage systems, including lithium-ion batteries, flow batteries, and hydrogen storage, which improve grid stability and ensure continuous power supply. Smart Grids, Artificial Intelligence (AI), and the Internet of Things (IoT) further enhance energy management through real-time monitoring, demand forecasting, and efficient power distribution.

The adoption of renewable energy offers numerous environmental and economic benefits, including reduced greenhouse gas emissions, improved air quality, energy security, and job creation. These technologies also support rural electrification and sustainable industrial growth. Understanding recent advancements in renewable energy equips engineering students with the technical knowledge required to develop innovative, efficient, and environmentally friendly energy solutions for a sustainable future

DINO SHERWIN A
IV YEAR / MECHANICAL

SMART INDIA HACKATHON (SIH) 2022 GRAND FINALE

The Department of Mechanical Engineering proudly participated in the Smart India Hackathon (SIH) 2022 Grand Finale, held at Indian Institute of Technology (IIT) Guwahati. The student team represented the institution with an innovative solution for the problem statement titled "Develop an Application to Facilitate IPR Filing for the Grassroots Community."



The Department of Mechanical Engineering proudly participated in the Smart India Hackathon (SIH) 2022 Grand Finale, held at Indian Institute of Technology (IIT) Guwahati. The student team represented the institution with an innovative solution for the problem statement titled "Develop an Application to Facilitate IPR Filing for the Grassroots Community."

The team comprised Mr. Thompson Inigo, Mr. R. Deva, Ms. R. P. Janagi, Mr. M. Revanth, and Mr. S. Kumar, who worked collaboratively to design and develop a user-friendly application aimed at simplifying the Intellectual Property Rights (IPR) filing process for grassroots innovators, entrepreneurs, and local communities. The student team was guided and mentored by Dr. K. Chellamuthu and Mr. M. Manimaran, faculty members of the Department of Mechanical Engineering. The mentors provided continuous technical guidance, strategic planning, and support throughout the various

stages of problem identification, solution development, prototype design, and final presentation preparation.

Participation in the Smart India Hackathon 2022 at IIT Guwahati provided the students with a valuable opportunity to engage with experts from academia, industry, and government sectors. The event enabled them to enhance their problem-solving abilities, innovation skills, teamwork, and entrepreneurial thinking while addressing a real-world societal challenge.

INDUSTRIAL VISIT

The Department of Mechanical Engineering organized an industrial visit for Second Year Mechanical Engineering students to Ramco Cements Limited, Ariyalur, on 03 November 2022. The visit was conducted with the objective of providing students with practical exposure to cement manufacturing processes and modern industrial operations.



During the visit, students gained firsthand knowledge of the various stages involved in cement production, including raw material extraction, crushing, blending, clinker production, grinding, and packaging. Industry professionals explained the operation of major equipment such as crushers, rotary kilns, conveyors, grinding mills, and pollution control systems. Students also learned about quality assurance practices, process optimization, and safety measures followed in the cement industry.

The visit offered valuable insights into large-scale manufacturing operations and enabled students to understand the practical applications of mechanical engineering concepts in industrial environments. The interaction with industry experts enhanced students' awareness of production systems, maintenance practices, and career opportunities in the cement and process industries.

GATE AWARENESS PROGRAMME

The Department of Mechanical Engineering, K. Ramakrishnan College of Engineering, organized a GATE Awareness Programme for the final-year students of the Third and Final Year Students with the objective of creating awareness about the Graduate Aptitude Test in Engineering (GATE) and its significance for higher education and career development. The programme aimed to motivate students to prepare for one of India's most prestigious engineering examinations and to explore the numerous opportunities available through GATE.

The session provided a comprehensive overview of the GATE examination, including its eligibility criteria, examination pattern, syllabus, marking

scheme, and effective preparation strategies. Students were introduced to the benefits of qualifying in GATE, such as admission to M.E./M.Tech. and Ph.D. programmes at premier institutions including IITs, NITs, IISc, and other reputed universities, along with opportunities for scholarships and financial assistance.



The resource person also highlighted the career prospects available through GATE scores, including recruitment opportunities in leading Public Sector Undertakings (PSUs), government organizations, research institutions, and core engineering industries. Practical guidance was provided on subject-wise preparation, time management, mock tests, previous year question analysis, and the importance of strengthening fundamental engineering concepts.

An interactive question-and-answer session enabled students to clarify their doubts regarding examination preparation, career planning, higher studies, and employment opportunities. The programme encouraged students to develop a focused approach towards competitive examinations and emphasized the importance of continuous learning and technical competency.

The awareness programme proved to be highly informative and motivating, inspiring students to pursue higher education, research, and rewarding careers in engineering. The Department of Mechanical Engineering remains committed to equipping students with the knowledge, confidence, and guidance required to excel in national-level competitive examinations and achieve professional success.

INDEPENDENCE DAY CELEBRATION 2022

The Department of Mechanical Engineering proudly congratulates its students for securing First Place in the March Past Competition during the Independence Day Celebration 2022 held at K. Ramakrishnan College of Engineering. Their outstanding discipline, synchronization, confidence, and team spirit were highly appreciated by the judges and the audience. The students displayed exemplary dedication and commitment through their well-coordinated performance, reflecting the values of patriotism and unity. This remarkable achievement brought pride and recognition to the department and the institution. The Department extends its heartfelt congratulations to all the participants and wishes them continued success in their future endeavors.



ART COMPETITION

The Department of Mechanical Engineering proudly appreciates Mr. M. Sridhar and his team of Final Year Mechanical Engineering students for their enthusiastic participation and outstanding performance in the Vegetable Carving and Creative Art Competition conducted at KRCE. The team showcased exceptional creativity, artistic skills, and teamwork by transforming ordinary vegetables into beautiful decorative designs and artistic models.



Their innovative carvings demonstrated precision, Patience, aesthetic sense, and attention to detail, reflecting the creative abilities of Mechanical Engineering students beyond technical academics. The event provided a

platform for students to express their artistic talents, enhance their creativity, and engage in healthy competition. Through their dedication and collaborative efforts, Mr. M. Sridhar and his team successfully highlighted the importance of innovation and design thinking in all fields of learning.

SPORTS ACHIEVEMENTS

The Department of Mechanical Engineering extends its heartfelt congratulations to H. Sarveshwaran, J. Karthi, S. Karthik, and R. B. Murali for securing Third Place in the Anna University Zonal Level Men's Kho-Kho Tournament held in November 2022. Their outstanding performance, unwavering determination, and exceptional teamwork have brought pride and recognition to the department and K. Ramakrishnan College of Engineering. Their dedication, discipline, and sporting spirit throughout the tournament exemplify the true values of sportsmanship and perseverance.



Heartiest congratulations to the entire team, and best wishes for continued success in all your future sporting endeavors!

ANNA UNIVERSITY - ZONE - 14 2022 - 2023 **CHESS - MEN WINNERS**



The Department of Mechanical Engineering proudly congratulates Mr. B. Siva Prasanna, II Year, for being a proud member of the Anna University Zone XIV Men's Chess Team, which emerged as Winners in the Zonal Chess Tournament 2022-2023. His exceptional strategic thinking, dedication, and competitive spirit have brought immense pride and recognition to the department and K. Ramakrishnan College of Engineering. This outstanding achievement reflects his commitment to excellence and the institution's encouragement of holistic student development. The department appreciates his remarkable accomplishment and wishes him continued success in future chess tournaments and all his endeavors

Heartiest congratulations, and may you achieve many more milestones in your sporting journey!



The Department of Mechanical Engineering proudly extends its heartfelt congratulations to Mr. R. B. Murali, II Year, for emerging as the Winner in the Anna University Zonal Level (Zone XIV) Chess Tournament. His exceptional analytical skills, strategic thinking, and unwavering determination have earned him this remarkable achievement, bringing immense pride and recognition to the department and K. Ramakrishnan College of Engineering. His success reflects the values of discipline, dedication, and perseverance that inspire fellow students to strive for excellence. The department applauds his outstanding accomplishment and wishes him continued success in future tournaments.