



**K. RAMAKRISHNAN
COLLEGE OF ENGINEERING**

(Autonomous) | Approved by AICTE | Affiliated to Anna University, Chennai
Accredited by NAAC with 'A' Grade | NBA Accredited Departments



DEPARTMENT OF **MECHANICAL ENGINEERING**

Frontier

• PERSISTENCE TOWARDS PASSION •



Vol. II Issue 1



Newsletter 2021-22



QUALITY
EDUCATION



RESEARCH &
INNOVATION



INDUSTRY
COLLABORATION



STUDENT
EXCELLENCE



Together We Engineer The Future





DEPARTMENT OF MECHANICAL FRONTIER

Persistence towards Passion

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COLLEGE OF ENGINEERING

Vol. II Issue 1

Newsletter 2021-22

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A newsletter 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

Frontier – Persistence Towards Passion

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



Dr. M. MEIGNANAMOORTHY
HoD / MECHANICAL

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.



QUALITY
EDUCATION



RESEARCH &
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COLLABORATION



STUDENT
EXCELLENCE

ABOUT THE INSTITUTION

K. Ramakrishnan College of Engineering (KRCE) is a private autonomous engineering institution established in 2008 near Samayapuram, Tiruchirappalli, affiliated with Anna University and approved by AICTE, with NAAC “A” grade accreditation and NBA accreditation for selected departments; the college offers undergraduate and postgraduate programs including CSE, AI & Data Science, IT, ECE, EEE, Mechanical Engineering, MBA, and M.E., and is known for its decent infrastructure, hostel facilities, digital library, placement training, technical clubs, and industry-oriented activities on its roughly 30-acre campus. KRCE is generally considered a mid-tier but improving engineering college in Tamil Nadu, particularly stronger in CSE/IT-related placements compared to core branches, with recruiters mainly from IT and service companies, while maintaining a comparatively strict academic and attendance system; the institution also promotes research through faculty publications and patents and is viewed as a reasonable option for students seeking affordable engineering education with good placement support in the Trichy region.

VISION & MISSION OF THE COLLEGE

VISION

- ❖ To achieve a prominent position among the top technical institutions

MISSION

- ❖ To bestow standard technical education par excellence through state of the art infrastructure, competent faculty and high ethical standards.
- ❖ To nurture research and entrepreneurship skills among the students in cutting edge technologies.
- ❖ To provide education that can be used as a tool to transform the students.

ABOUT THE DEPARTMENT

The Department of Mechanical Engineering was established in 2008 and currently offers undergraduate and postgraduate programs, namely B.E. Mechanical Engineering and M.E. Engineering Design. The department has an intake of 180 students for UG and 24 students for PG. It is an NBA-accredited department and has been recognized as an Anna University approved research centre with Ph.D. supervisors for both full- time and part-time research scholars. The department achieved NAAC “A” grade accreditation and holds autonomous status from the academic year 2020–2021 onwards. It is also recognized under UGC 2F & 12B status and certified with ISO 9001:2015 and ISO 14000 standards. The department is equipped with ten well-established laboratories along with a state-of-the-art Material Testing Laboratory. It also has advanced facilities such as Turnitin plagiarism detection software and an SAE garage for automotive innovation and student competitions. The faculty members are highly experienced, with an average experience of 8.9 years, and many hold doctoral degrees with strong research publications in reputed journals. The department promotes active student involvement in SAE activities such as BAJA, Auto Sports, Mega ATV, QBDC, SUVC, E-CART, Go-KART, and EFFI-CYCLE competitions. The department focuses on producing competent, ethical, and employable mechanical engineers with strong technical, professional, and soft skills. It aims to prepare graduates who can contribute effectively to industry and society through innovation and engineering excellence.

VISION

- ❖ To provide eminent mechanical engineers to the industries and society through quality education.

MISSION

- ❖ To impart quality professional education through state-of-the-art infrastructures.
- ❖ To motivate students and faculty to undertake research and development activities in the thrust areas of mechanical engineering.
- ❖ To carry out collaborative projects with industries and academics.

PROGRAM EDUCATIONAL OBJECTIVES

The PEOs of the programme are

PEO 1: Have a successful career in industry or opt for higher studies/research.

PEO 2: Analyze, synthesize and design mechanical & allied products addressing societal issues.

PEO 3: Exhibit technical expertise, communication skills and teamwork with Professionalism and ethical values.

PROGRAM SPECIFIC OUTCOMES

PSO1: Identify, formulate and solve engineering problems in three core streams of Mechanical Engineering, i.e., design engineering, thermal and fluids engineering and manufacturing engineering.

PSO2: Design, develop, test and implement energy efficient systems for required engineering applications.

JOURNAL PUBLICATIONS:

- ❖ Mebin Samuel Panithasan, Manimaran Malairajan, Mathivanan Balusamy, Gnanamoorthi Venkadesan” Evaluating the engine emission outcomes from a CRDI engine operated with low viscous bio-oil blends under the influence of diethyl ether”, Recent Advances in Mechanical Engineering, Springer, 265-276, 2021
- ❖ P.C. Santhosh Kumar, R. Naveenkumar, Mohsen Sharifpur, Alibek Issakhov, M. Ravichandran V. Mohanavel, Navid Aslfattahi, Asif Afzal Experimental investigations to improve the electrical efficiency of photovoltaic modules using different convection mode Sustainable Energy Technologies and Assessments, Vol no 48 (2021) issue no 101582

- ❖ Ramakrishnan, H., Ganesh, N., James, D. J. D., & Ashok, B. (2021). Experimental Analysis Of Cut Quality On Ss347 Material Using Co2 Assisted Laser Beam Cutting And Parametric Optimization Using Genetic Algorithm. *Surface Review and Letters*, 28(10), 2150085.
- ❖ Karthik Pandiyan G, Prabakaran, T., Jafrey Daniel James D, Sivalingam, V., & Thangapandian, N. (2021). Improvement on the machinability characteristics of AA6061-T6/15 wt.% SiC composites by Response Surface methodology. *Surface Topography: Metrology and Properties*, 9(3), 035050.
- ❖ Raghunathan, V., Dhilip, J. D. J., Ramesh, M., Kumaresan, R., Govindarajan, S., Karunamoorthi, S., ... & Khan, A. (2021). The Effects of Stacking Sequence on the Mechanical and Water Absorption Properties of Areca-Pineapple Fiber-based Epoxy Composites. *Journal of Natural Fibers*, 1-12.
- ❖ H. Ramakrishnan, R. Balasundaram, N. Baskar, B. Radhakrishnan, K. Chellamuthu, Surface modification method of duplex type stainless steels by the pack boriding process . *Hemijiska Industrija* 75 (2021) 155-166. doi.org/10.2298/HEMIND210103019H.SCI-E,Q4.
- ❖ H. Ramakrishnan, N. Ganesh, D. Jafrey danieljames, B. Ashok, Experimental Analysis of Cut Quality On SS347 Material Using Co2 Assisted Laser Beam Cutting and Parametric Optimization using Genetic Algorithm'. *Surface Review and Letters*.(2021). doi.org/10.1142/S0218625X21500852.SCIE. Q3.
- ❖ H. Ramakrishnan, Chellamuthu.K, Shanmugapandian.R, Ranjithkumar.B, Shahna.S, Shankar.P, 'Experimental Investigations Of Cut Quality Characteristics In Pipe Coupling And Flange Materials Using Laser Machining Process', *Turkish Journal of Physiotherapy and*

Rehabilitation; 32(3), (2021), pp. 714 -721.

- ❖ K. Chellamuthu, H. Ramakrishnan, S. Nandhagopan, A. Vasanthanathan, R. Ranjith, N. Sriraam, S. Sabarisathish, S. Sathees, 'FRP pipes with magnesium oxide for medical and naval perspective'. Turkish Journal of Physiotherapy and Rehabilitation, Web of Science, E-SCI. 32(3), (2021), pp. 5325 – 5331.
- ❖ Kannan, V. S., Pugalenth, P., Lenin, K., Sandhiya, D., Raj Hariharan, A. S., Sakthipriyan, S., & Mohan, R. R. (2021, September). Analyzing the mechanical properties of aluminium (SiC, B₄C) hybrid Composite. In IOP Conference Series: Materials Science and Engineering (Vol. 1183, No. 1, p. 012002). IOP Publishing.
- ❖ Mariappan, M., Parthasarathi, N. L., Ravindran, R., Lenin, K., & Raja, A. (2021). Effect of alternating shielding gases in gas metal arc welding of SA515 Gr 70 carbon steel. Materials Research Express, 8(9), 095601.
- ❖ Sivabalan, R., Thangadurai, K. R., & Lenin, K. (2021). Influences of Si₃N₄ and Al₂O₃ reinforcement particulates on mechanical and wear properties of Mg (ZE41A) matrix hybrid metal matrix composite materials. Journal of Ceramic Processing Research, 22(6), 605-614.
- ❖ Chandrika, V. S., Karthick, A., Kumar, N. M., Kumar, P. M., Stalin, B., et al. (2021). Experimental analysis of solar concrete collector for residential buildings. International Journal of Green Energy, 18(6), 615-623.
- ❖ Paidar, M., Mohanavel, V., Ojo, O. O., Mehrez, S., Rajkumar, S., & Ravichandran, M. (2021). Dieless friction stir extrusion-brazing (DFSE-B) of AA2024-T3 aluminum alloy to copper with Zn interlayer. Results in Physics, 24, 104101.

- ❖ Naveenkumar, R., Ravichandran, M., Stalin, B., Ghosh, A., Karthick, A., et al. (2021). Comprehensive review on various parameters that influence the performance of parabolic trough collector. *Environmental Science and Pollution Research*, 28(18), 22310–22333.
- ❖ Ali, K. S. A., Mehrez, S., Ojo, O. O., Mohanavel, V., Yoganandam, K., et al. (2021). Modified friction stir clinching of AA5754-O to AA6061-T6: The role of shoulder feature on metallurgical and mechanical properties. *Vacuum*, 187, 110109.
- ❖ Kumar, S. D., Ravichandran, M., Jeevika, A., Stalin, B., Kailasanathan, C., et al. (2021). Effect of ZrB_2 on microstructural, mechanical and corrosion behaviour of aluminium alloy matrix composite prepared by stir casting route. *Ceramics International*, 47(9), 12951–12962.
- ❖ Raveendran, P., Alagarsamy, S. V., Ravichandran, M., & Meignanamoorthy, M. (2021). Effect of machining parameters on surface roughness for aluminium matrix composite using Taguchi method with decision tree algorithm. *Surface Review and Letters*, 28(4), 2150021.
- ❖ Sakthivelu, S., Sethusundaram, P. P., Ravichandran, M., & Meignanamoorthy, M. (2021). Experimental investigation and analysis of properties and dry sliding wear behavior of Al-Fe-Si alloy matrix composites. *Silicon*, 13(4), 1285–1294.
- ❖ Veerappan, G., Ravichandran, M., Meignanamoorthy, M., & Mohanavel, V. (2021). Characterization and properties of silicon carbide reinforced Ni-10Co-5Cr matrix composite produced via powder metallurgy route. *Silicon*, 13(4), 973–984.

- ❖ Vairamuthu, J., Kumar, A. S., Stalin, B., & Ravichandran, M. (2021). Synthesis and electrochemical behaviour of TiC- and B₄C-reinforced Al-based metal matrix composite. *Emerging Materials Research*, 10(1), 24–32.
- ❖ Paidar, M., Mehrez, S., Ojo, O. O., Mohanavel, V., Babaei, B., & Ravichandran, M. (2021). Modified friction stir clinching of AA6061-T6/AA5754-O joint: Effect of tool rotational speed and solution heat treatment on mechanical, microstructure, and fracture behaviors. *Materials Characterization*, 173, 110962.
- ❖ Kaviarasu, C., Prakash, D., & Ravichandran, M. (2021). Minimization of nanoparticle deposition rate in a square duct with a 90° bend using Taguchi technique. *Applied Nanoscience*, 11(3), 995–1008.
- ❖ Jafrey Daniel James D., Ramakrishnan H., Karthik Pandiyan G., Bharath M., Gokul P., Akash G., & Arun R. . Experimental investigation and optimization by evaluation based on distance from average solution approach for wire electrical discharge machining of super duplex stainless steels. *Journal not specified*
- ❖ Albert, F. A., Jafrey Daniel James D., Karthik Pandiyan G., John I. W., Hariharan S., Guna A., Haribaskar L., Sathish Kumar G., & Mohanraj C. (Year not provided). Tribological studies and optimization of two-body abrasive wear of NaOH-treated Vachellia farnesiana fiber by additive ratio assessment method. *Journal not specified*.
- ❖ Naveenkumar, R., Ravichandran, M., Mohanavel, V., Karthick, A., Aswin, L. S. R. L., Priyanka, S. S. H., Kiran Kumar, S. K., & Pradeep Kumar, S. Review on phase change materials for solar energy storage applications. *Environmental Science and Pollution Research*, 29(7), 9491–9532.

- ❖ Naveenkumar, R., Ravichandran, M., Stalin, B., Ghosh, A., Karthick, A., Aswin, L. S. R. L., Harini Priyanka, S. S., Pradeep Kumar, S., & Kiran Kumar, S. S. (2021). Comprehensive review on various parameters that influence the performance of parabolic trough collector. *Environmental Science and Pollution Research*, 28(18), 22310–22333.
- ❖ Naveenkumar, R., Ravichandran, M., Harish, R., Ruskin, J. J., Pozhingiyan, N., & Kolanjinathan, A. (Year not provided). Comprehensive review on ideas, designs and current techniques in solar dryer for food applications. *Environmental Science and Pollution Research*.
- ❖ Dr. M. Sridharan published the research article “Application of Mamdani Fuzzy Inference System in Predicting the Thermal Performance of Solar Distillation Still” in the *Journal of Ambient Intelligence and Humanized Computing* (Scopus/SCIE/WoS Indexed) in 2021.
- ❖ Dr. M. Sridharan, C. Franklin and M. Chandrasekar, published the paper “Performance of Downstream Finned Solar Photovoltaic Thermal Air (PVTa) System” in the *Journal of Thermal Science & Engineering Applications* (Scopus/SCIE/WoS Indexed) in 2021.
- ❖ Dr. M. Sridharan and Shri Balaji Shenbagaraj published the article “Application of Generalized Regression Neural Network in Predicting the Thermal Performance of Solar Flat Plate Collector Systems” in the *Journal of Thermal Science & Engineering Applications* (Scopus/SCIE/WoS Indexed) in 2021.

AICTE - ATAL FUND RECEIVED

- ❖ As Co - PI - Received Rs 93,000 /- from AICTE - ATAL to conduct one week workshop on the topic of “ Application of Artificial Intelligence for Mechanical Engineering”. Date of workshop 02/08/2021 - 06/08/2021, App.No. 1614050680 /AICTE/ATAL - HQ/21-22.



PATENT PUBLICATIONS

- ❖ Kathiravan, Kaarthick, Pushparaj, Ragul, Hariharan, Ramakrishnan, Arockiya Raj Albert Francis, and Devaraju Srinivasan invented the patent titled “Automatic Wall Cleaner”, published in Australia on 17-06-2021.
- ❖ Lenin, K., Palanisamy, D., Ramesh Raju, Manikandan, N., Thejasree, & Arulkirubakaran. (2021). Smart Helmet Inbuilt Wireless Communication Kit and System (Indian Patent Application No. 202141028849; Publication No. 28/2021). Published July 9, 2021.

FDP/WORKSHOP/SEMINAR/CONFERENCE

- ❖ H. Ramakrishnan attended the ATAL Faculty Development Programme (FDP) on “Lean Thinking for Sustainable Business

Practices” conducted at SRM Institute of Science and Technology from 16.08.2021 to 20.08.2021.

- ❖ Mr. Manimaran. M participated “FDTP on Familiarization, Handling and training on Sophisticated analytical and Energy audit instruments for Engineers, NIT - TRICHY from 18.10.2021 to 24.10.2021.
- ❖ Mr. S. Raghuvaran participated “FDTP on Familiarization, Handling and training on Sophisticated analytical and Energy audit instruments for Engineers, NIT - TRICHY from 18.10.2021 to 24.10.2021.
- ❖ R. Naveenkumar has participated FDP on “Manufacturing Processes” conducted by Sri Sairam Engineering College, Chennai from 12.08.2021 to 19.08.2021.
- ❖ R. Naveenkumar has participated FDP on Research Excellence and Academic Development conducted by Sri Ramakrishna College of Arts & Science from 01.09.2021 to 08.09.2021.

PLACEMENT DETAILS

- ❖ The Department of Mechanical Engineering proudly congratulates **Abdul Basheer S, Bharathraj S, Harish R, Kumaresan N, Malarvendhan K, Muniyappan K, Muthukumar S, Rohith S.M.K, Samuel Christian J, Sathish R, Selvakumar N, Shanmugaraj R, Sidharthan V, Vijayakumar V, Vikneshtanraj R.L., Kowshik S, and Manikandan R** on securing placements at **Motherson** during the academic year **2021–2022**. The students received an attractive annual package of **₹2.16 LPA (₹2,16,000 per annum)**. Their achievement reflects the department's commitment to academic excellence, industry-oriented training, and holistic personality development.
- ❖ The Department of Mechanical Engineering proudly congratulates

Dinesh Krishna C, Gokul P, Madessh P, Sugi Sudhan R, Vinoth Pandi S, Karthik S, and Sarath Kumar R on securing placements at IONIXX during the academic year 2021–2022. The students received an impressive annual package of ₹5.00 LPA (₹5,00,000 per annum).

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DEPARTMENT OF MECHANICAL ENGINEERING

ACADEMIC YEAR
2021 - 2022

Heartily Congratulates
the following students for being successfully placed in

IONIXX
TECHNOLOGIES PRIVATE LIMITED

Dinesh Krishna C IV Year/Mechanical	Gokul P IV Year/Mechanical	Madessh P IV Year/Mechanical	Sugi Sudhan R IV Year/Mechanical	Vinoth Pandi S IV Year/Mechanical	Karthik S IV Year/Mechanical

WITH AN ATTRACTIVE PACKAGE OF **₹ 5,00,000** PER ANNUM

We wish them a successful and prosperous career ahead!

- ❖ The Department of Mechanical Engineering proudly congratulates **S. Akash** on securing a placement at **GESCO** with an annual package of **₹2.11 LPA**. The department wishes him a bright and successful professional career ahead.
- ❖ The Department of Mechanical Engineering proudly congratulates **M. Bharath** and **M. Hariharan** on securing placements at **TPRS** with an annual package of **₹1.80 LPA**.
- ❖ The Department of Mechanical Engineering proudly congratulates **M. Balasubramanian, M. Hariharan, K. Kanimurugan, S. Kiran Kumar, C. Kousalya, K. Kumaravel, B. Suganth, and S. Suresh** on securing placements at **Mu Sigma** with an annual package of **₹3.50 LPA**. The department wishes them a successful and rewarding professional

career ahead.



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DEPARTMENT OF MECHANICAL ENGINEERING

ACADEMIC YEAR
2021 – 2022

Heartily Congratulates
the following students for being successfully placed in

**Mu Sigma**
DO THE MATH™

WITH AN ATTRACTIVE PACKAGE OF **₹ 3,50,000** PER ANNUM

 Balasubramanian M IV Year/Mechanical	 Hariharan M IV Year/Mechanical	 Kanimurugan K IV Year/Mechanical	 Kiran Kumar S IV Year/Mechanical	 Kousalya C IV Year/Mechanical	 Kumaravel K IV Year/Mechanical	 Suganth B IV Year/Mechanical	 Suresh S IV Year/Mechanical
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*We wish them a successful and prosperous career ahead!*

- ❖ The Department of Mechanical Engineering proudly congratulates **S. Danish Ahamed, N. Hariharan, K. Harrish Raj, P. Praveena, M. Prithiviraj, P. Raja, M. Rakesh, R. Sirajudeen, M.V. Siththarthan, P. Sivapriyan, S. Aadhiganesh, B. Balaganesh, S. Boobalan, J. Hyden, R. Kishore, S. Nijandhan, and S. Sandoche** on securing placements at **Renault Nissan** with an impressive annual package of **₹4.75 LPA**. Their accomplishment stands as a testament to their dedication, technical competence, and the department's continuous efforts in fostering industry-ready professionals.
- ❖ The Department of Mechanical Engineering proudly congratulates **R. Arun** on securing a placement at **TDS** with an annual package of **₹1.80 LPA**.