



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 4



Newsletter 2022-23

K. RAMAKRISHNAN
COLLEGE
OF
ENGINEERING

KR
K R C E



QUALITY
EDUCATION



RESEARCH &
INNOVATION



INDUSTRY
COLLABORATION



STUDENT
EXCELLENCE



Together We Engineer The Future





DEPARTMENT OF MECHANICAL FRONTIER

Persistence towards Passion



K.RAMAKRISHNAN
COLLEGE OF ENGINEERING

Vol. II Issue 4

Newsletter 2022-23

EDITORIAL BOARD



CHIEF PATRON(S)

Dr. K. Ramakrishnan

Chairman,
KR Group of Institutions

Dr. D. Srinivasan

Principal,
K. Ramakrishnan
College of Engineering



PATRON

Dr. H. Ramakrishnan

Assistant Professor/
Head of the Department
Department of
Mechanical Engineering

EDITORS

Dr. H. Ramakrishnan

Assistant Professor,
Department of
Mechanical Engineering

Mr. S. Raghuvaran

Mr. M. Manimaran
Assistant Professor,
Department of
Mechanical Engineering



STUDENT EDITORS

Mr. T. Lohit Shriram

IV Year
B.E. Mechanical Engineering

Mr. D. Gokul

III Year
B.E. Mechanical Engineering



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 contribute meaningfully to society.



Dr. D. SRINIVASAN
PRINCIPAL - KRCE



Dr. H. RAMAKRISHNAN
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 &
INNOVATION



INDUSTRY
COLLABORATION



STUDENT
EXCELLENCE

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.

FACULTY ACHIEVEMENTS:

JOURNAL PUBLICATIONS:

- ❖ F. Mary Anjalin, A. Mohana Krishnan, G. Arunkumar, K. Raju , M. Vivekanandan, S. Somasundaram, T. Thirugnanasambandham , and Elangomathavan Ramaraj , “inorganic adsorption on thermal response and wear properties of nanosilicon nitride-developed aa6061 alloy nanocomposite” 25 January 2023, Adsorption Science & Technology- <https://doi.org/10.1155/2023/8468644>.
- ❖ L. Prabhu,¹ R. Saravanan,² A. Anderson,³ A. Senthilkumar ,¹ V. N. Aneesh,⁴ Avinash Malladi ,⁵ A. Mohana Krishnan,⁶ and Manaye Majora ⁷ “synthesis, thermal adsorption, and energy storage calibration of polysulfone nanocomposite developed with gnp/ cnt nanofillers”, 27

January 2023- Adsorption Science & Technology-
<https://doi.org/10.1155/2023/737654>.

- ❖ R. Venkatesh a, SuhasBallal b, A. Mohana Krishnan c, S. Prabakaran d, S. Mohankumar e, ElangomathavanRamaraj f, “effect of fiber layer formation on mechanical and wear propertiesof natural fiber filled epoxy hybrid composites” 3 May 2023- Heliyon-
<https://doi.org/10.1016/j.heliyon.2023.e15934>.
- ❖ R. Venkatesh, P. C. Santhosh Kumar, A. Senthilkumar , J. Phani Krishna, P. Chandramohan, V. N. Aneesh, Avinash Malladi , C. B. Priya , and Elangomathavan Ramaraj Mechanical Interlocking Approaches to the Prediction of Mechanical and Tribological Behavior of Natural Fiber-Reinforced Polymer Hybrid Nanocomposites or Automotive Applications Advances in Polymer Technology,Vol No 2023
- ❖ Karthik, A., Daniel James D, J., Sampath, P. S., & Thirumurugan, V. (2023). Effect of alkali treatment on cotton/bamboo fibres for application as a reinforcement material. Proceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering, 09544089231162292.
- ❖ James, D.J.D., Ramakrishnan, H., Pandiyan, G.K. et al. Experimental Investigation and Optimization by Evaluation Based on Distance from Average Solution Approach for Wire Electrical Discharge Machining of Super Duplex Stainless Steels. Journal of Materials Engineering and Performance (2023). <https://doi.org/10.1007/s11665-023-08052-8>. SCI-E. Q2.
- ❖ D. Srinivasan, H.Ramakrishnan, R. Balasundaram, and M. Ravichandran, Optimization of Laser Cutting Process Parameters on Ss347 Using Gra and Topsis, Surface Review and Letters, 30 (6), (2023)

<https://doi.org/10.1142/S0218625X23500397>. SCIE , Q3.

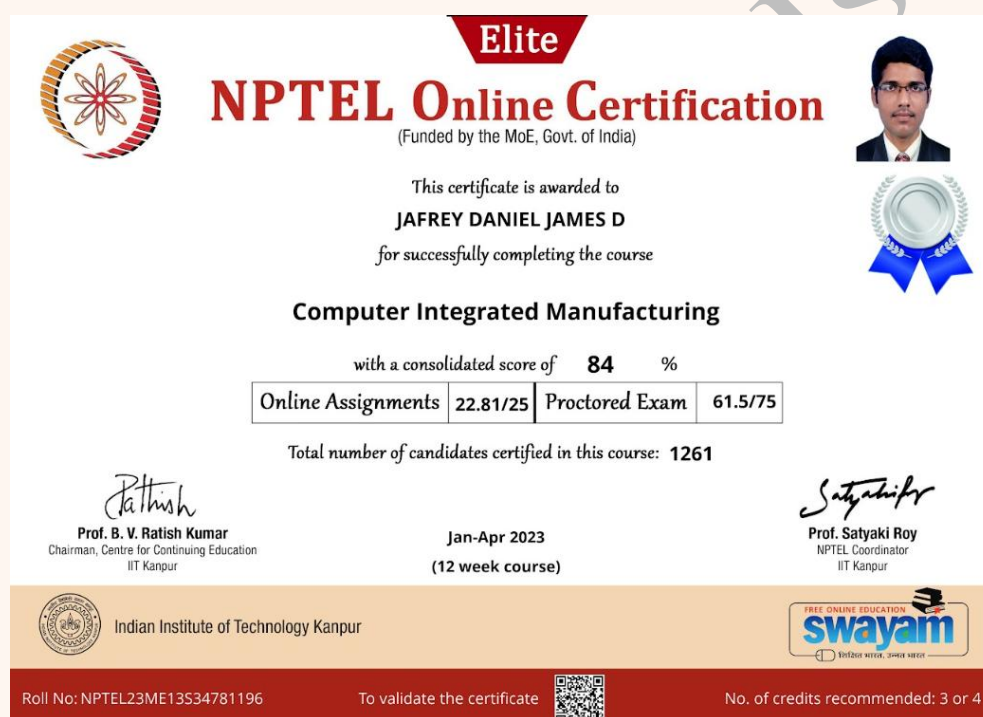
- ❖ Thirumalaisamy, R., Senthil Kumar, S., Chelladurai, S. J. S., Gnanasekaran, S., Sivananthan, S., Geetha, N. K., ... & Assefa, G. B. (2023). Study on water absorption characteristics, various chemical treatments, and applications of biological fiber-reinforced polymer matrix composites. *Journal of Nanomaterials*, 2023(1), 9903119.
- ❖ Mary Anjalin, F., Mohana Krishnan, A., Arunkumar, G., Raju, K., Vivekanandan, M., Somasundaram, S., Thirugnanasambandham, T., & Ramaraj, E. (2023). Inorganic adsorption on thermal response and wear properties of nanosilicon nitride-developed AA6061 alloy nanocomposite. *Adsorption Science & Technology*, 2023, Article 8468644. <https://doi.org/10.1155/2023/8468644>
- ❖ Prabhu, L., Saravanan, R., Anderson, A., Senthilkumar, A., Aneesh, V. N., Malladi, A., Mohana Krishnan, A., & Majora, M. (2023). Synthesis, thermal adsorption, and energy storage calibration of polysulfone nanocomposite developed with GNP/CNT nanofillers. *Adsorption Science & Technology*, 2023, Article 7376542. <https://doi.org/10.1155/2023/7376542>
- ❖ Venkatesh, R., Ballal, S., Mohana Krishnan, A., Prabakaran, S., Mohankumar, S., & Ramaraj, E. (2023). Effect of fiber layer formation on mechanical and wear properties of natural fiber filled epoxy hybrid composites. *Heliyon*, 9(5), e15934. <https://doi.org/10.1016/j.heliyon.2023.e15934>.
- ❖ Yogaraj, P., Kasirajan, L., & Senthamaraikannan, B. (2023). Effect of Tool Pin Positioning Factors on the Strength Behavior of Dissimilar Joints of AA5754-H111 and AA6101-T6 by Using Friction Stir Welding. *Transactions of the Indian Institute of Metals*, 76(11), 3021 3030.

- ❖ Venkatesh R, Ramakrishnan H, Karthigairajan M, Subramaniam P, Priya C B, Melvin Victor D, Ismail H, Asiful Hossain S & Md Abul Kalam,' Effect of steam gasification parameters on hydrogen extraction from indirect land use change crops, Energy Sources, Part A: Recovery, Utilization, and Environmental Effects. (2023). <https://doi.org/10.1080/15567036.2023.227266>. SCI (Q2).
- ❖ James, D.J.D., Ramakrishnan, H., Pandiyan, G.K. et al. Experimental Investigation and Optimization by Evaluation Based on Distance from Average Solution Approach for Wire Electrical Discharge Machining of Super Duplex Stainless Steels. Journal of Materials Engineering and Performance (2023). <https://doi.org/10.1007/s11665-023-08052-8>. SCI-E. Q2.
- ❖ Sekaran, P.R., Ramakrishnan, H., Venkatesh, R. et al. Mechanical and Physical Characterization Studies of Nano Ceramic Reinforced Al-Mg Hybrid Nanocomposites. Silicon (2023). <https://doi.org/10.1007/s12633-023-02473-9>.

NPTEL COURSE

- ❖ R. Naveenkumar successfully completed the NPTEL Online Certification (Funded by the Ministry of Education, Govt. of India – IIT Roorkee) course “Principles of Industrial Engineering” during Jan–Apr 2023 (12-week course) with 60% (Elite).
- ❖ H. Ramakrishnan successfully completed the NPTEL Online Certification (Funded by the Ministry of Education, Govt. of India – IIT Roorkee) course “Mechanical Measurement System” during Feb–Apr 2023 (8-week course) with 44% (Successfully Completed).

- ❖ H. Ramakrishnan successfully completed the NPTEL Online Certification (Funded by the Ministry of Education, Govt. of India – IIT Kanpur) course “Total Quality Management – I” during Feb–Apr 2023 (8-week course) with 55% (Successfully Completed).
- ❖ Jafrey Daniel James D successfully completed the NPTEL Online Certification (Funded by the Ministry of Education, Govt. of India – IIT Kanpur) course “Computer Integrated Manufacturing” during Jan–Apr 2023 (12-week course) with 84% (Elite + Silver).



- ❖ Jafrey Daniel James D successfully completed the NPTEL Online Certification (Funded by the Ministry of Education, Govt. of India – IIT Kanpur) course “Product Design and Manufacturing” during Jan–Apr 2023 (12-week course) with 81% (Elite + Silver).
- ❖ M. Manimaran successfully completed the NPTEL-AICTE Faculty Development Programme (Funded by the Ministry of Education, Govt. of India – IIT Madras) course “Solar Photovoltaics: Principles, Technologies

& Materials” during Jan–Mar 2023 (8-week course) with 54% (Successfully Completed).

- ❖ S. Nandha Gopan successfully completed the NPTEL Online Certification (Funded by the Ministry of Education, Govt. of India – IIT Roorkee) course “Supply Chain Analytics” during Feb–Apr 2023 (8-week course) with a consolidated score of 46% (Successfully Completed).

FACULTY CONTRIBUTIONS AS RESOURCE PERSONS

- ❖ The Department congratulates **Dr. K. Lenin** for serving as a **Resource Person** on “Industry 4.0” at **Jayaram College of Engineering and Technology, Thuraiyur**, on **10 April 2023**. His session provided valuable insights into smart manufacturing, automation, and digital transformation.



**K. RAMAKRISHNAN
COLLEGE OF ENGINEERING**
An Autonomous Institution
Permanently Affiliated to Anna University Chennai
Approved by AICTE New Delhi | ISO 9001:2015 Certified Institution
Accredited by NBA and with 'A' Grade by NAAC
Samayapuram, Tiruchirappalli – 621 112, Tamil Nadu, India.





DEPARTMENT OF MECHANICAL ENGINEERING

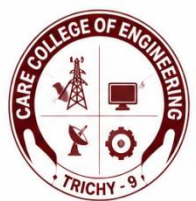
Hearty Congratulations
to our esteemed faculty member

Mr. K. Chellamuthu

for delivering an invited lecture on
“Additive Manufacturing”
at CARE College of Engineering, Tiruchirappalli,
on **15 May 2023**.

His presentation highlighted the latest developments
and industrial applications of additive manufacturing
technologies.

**INVITED
LECTURE**





We appreciate his valuable contribution to academic excellence!



- ❖ The Department appreciates **Dr. K. Chellamuthu** for delivering an invited lecture on “**Additive Manufacturing**” at **CARE College of Engineering, Tiruchirappalli**, on **15 May 2023**. His presentation highlighted the latest developments and industrial applications of additive manufacturing technologies.



**K. RAMAKRISHNAN
COLLEGE OF ENGINEERING**
An Autonomous Institution
Permanently Affiliated to Anna University Chennai
Approved by AICTE New Delhi | ISO 9001:2015 Certified Institution
Accredited by NBA and with 'A' Grade by NAAC
Samayapuram, Tiruchirappalli – 621 112, Tamil Nadu, India.



DEPARTMENT OF MECHANICAL ENGINEERING

Hearty Congratulations
to our esteemed faculty member

Dr. M. Ravichandran
Professor, Department of Mechanical Engineering

for successfully completing the **IEI-funded** research project
**“Development of Hydroxyapatite Reinforced
Magnesium Based Composite Through Spark
Plasma Sintering for Bio Medical Applications”**
as a **Guide**.

The project, supported with a grant of **₹ 1,00,000** by
Institution of Engineers India (IEI), was completed on **22 June 2023**,
contributing significantly to advancements in biomaterials
and biomedical engineering.

**RESEARCH PROJECT
COMPLETED
22.06.2023**



 *We appreciate his valuable contribution to academic excellence!* 

The Department proudly congratulates **Dr. M. Ravichandran**, Professor, Department of Mechanical Engineering, for successfully completing the IEI-funded research project titled “Development of Hydroxyapatite Reinforced Magnesium Based Composite Through Spark Plasma Sintering for Bio Medical Applications” as a Guide. The project, supported with a grant of ₹1,00,000 by the Institution of Engineers India (IEI), was completed on 22 June 2023, contributing significantly to advancements in biomaterials and biomedical engineering.

FACULTY Ph.D COURSE AWARDED:

The Department of Mechanical Engineering proudly congratulates Dr. R. Naveenkumar, Assistant Professor, on being awarded the Doctor of Philosophy (Ph.D.) degree by the National Institute of Technology, Tiruchirappalli (NIT-Trichy).



**K. RAMAKRISHNAN
COLLEGE OF ENGINEERING**
An Autonomous Institution
Permanently Affiliated to Anna University Chennai
Approved by AICTE New Delhi | ISO 9001:2015 Certified Institution
Accredited by NBA and with 'A' Grade by NAAC
Samayapuram, Tiruchirappalli – 621 112, Tamil Nadu, India.



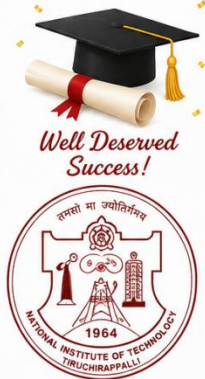


DEPARTMENT OF MECHANICAL ENGINEERING

Heartiest Congratulations
to our esteemed faculty member

Dr. R. Naveenkumar
Assistant Professor, Department of Mechanical Engineering

for being awarded the
Doctor of Philosophy (Ph.D.) Degree
by
NIT – Trichy
for his research work titled
**“Performance Evaluation of Modified Slope
Solar Still Using Nanofluids”**





*We are proud of your achievement and wish you continued success
in all your future endeavors!*



His doctoral research, titled “Performance Evaluation of Modified Slope Solar Still Using Nanofluids,” demonstrates significant contributions to the fields of renewable energy, solar desalination, and sustainable engineering technologies.

The department appreciates his dedication, perseverance, and commitment to academic excellence. His achievement serves as an inspiration to students and faculty members alike, reflecting the institution’s pursuit of research and innovation. We wish Dr. Naveenkumar continued success in his future academic, research, and professional endeavors.



K. RAMAKRISHNAN COLLEGE OF ENGINEERING

An Autonomous Institution

Permanently Affiliated to Anna University Chennai
Approved by AICTE New Delhi | ISO 9001:2015 Certified Institution
Accredited by NBA and with 'A' Grade by NAAC
Samayapuram, Tiruchirappalli – 621 112, Tamil Nadu, India.



DEPARTMENT OF MECHANICAL ENGINEERING



Hearty Congratulations

to our esteemed faculty member

Dr. H. Ramakrishnan

Assistant Professor, Department of Mechanical Engineering

for being awarded the

Doctor of Philosophy (Ph.D.) Degree

by

Anna University, Chennai

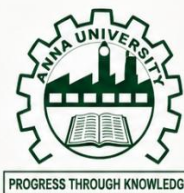
in the year **2023**

for his research work titled

**“Characterization and Experimental Investigation
of Pack Boronizing Process of Various SS Grades
Using ANOVA and Machine Learning Approaches”**



*Well Deserved
Success!*



*“We are proud of your achievement and wish you continued success
in all your future endeavors!”*



The Department of Mechanical Engineering proudly congratulates Dr. H. Ramakrishnan, Assistant Professor, on being awarded the Doctor of Philosophy (Ph.D.) degree by Anna University, Chennai, in the year 2023. His doctoral research, titled “Characterization and Experimental Investigation of Pack Boronizing Process of Various SS Grades Using ANOVA and Machine Learning Approaches,” reflects his significant contribution to the fields of surface engineering, materials science, and advanced manufacturing technologies.

The department appreciates his dedication, perseverance, and scholarly excellence, which serve as an inspiration to students and fellow academicians. We wish him continued success in his research, academic pursuits, and professional endeavors.

FDP/WORKSHOP/SEMINAR/CONFERENCE

- ❖ Mr. N. Karthikeyan attended a five-day PDP on “Intellectual Property Rights, Research, Innovations and Entrepreneurship Development” conducted in hybrid mode at Karur from 30.01.2023 to 03.02.2023.
- ❖ Mr. S. Raghuvaran participated in the FDP on “Clinical Significance of 3D Printed Biomaterials and Biomedical Devices” conducted by Indian Council of Medical Research at K. Ramakrishnan College of Technology for 2 days from 25.04.2023 to 26.04.2023.
- ❖ Mr. Manimaran. M “3 Days FDTP on Idea Generations Methods, M.A.M School Engineering, Trichy from 11.05.2023 to 13.05.2023
- ❖ Mr. S. Raghuvaran attended the FDP on “Recent Advancements in Machine Learning, Cyber Security and IoT” conducted at SRM Institute of Science and Technology for 5 days from 08.05.2023 to 13.05.2023.
- ❖ Mr. S. Raghuvaran attended the FDP on “Intellectual Property Rights” conducted at SRM Institute of Science and Technology from 06.06.2023 to 12.06.2023.
- ❖ Mr. S. Raghuvaran participated in the FDP on “Inculcating Universal Human Values in Technical Education” organized by All India Council for Technical Education for 5 days from 22.05.2023 to 26.05.2023.

STUDENT ACHIEVEMENTS:

STUDENT JOURNAL PUBLICATIONS:

- ❖ Rajaram, S., Kanimurugan, K., Kumaresan, N., Mohamed Naveed, S., & Praveena, P. (2023). Effect of rock powder on the mechanical properties of AL7075 metal matrix composites. Materials Today: Proceedings, 74(1), 85–90.
- ❖ Rajaram, S., Karthikeyan, P., Jaya Surya, T., Kaniskar, K., &

Pazhanivel, V. (2023). Experimental investigation of mechanical properties of AA6063/ZrO metal matrix composites. Materials Today: Proceedings.



Experimental investigation of mechanical properties of AA6063/ZrO₂ metal matrix composites

S. Rajaram , P. Karthikeyan, T. Jaya Surya, K. Kaniskar, V. Pazhanivel

Department of Mechanical Engineering, K.Ramakrishnan college of engineering (Autonomous), Samayapuram, Tiruchirappalli-621 112
Tamilnadu, India

Available online 6 January 2023, Version of Record 12 February 2023.

[What do these dates mean?](#)

[Show less](#) ^

 Cite  Add to Mendeley  Share | 10.1016/j.matpr.2022.12.129 ↗

 Access through your organization [Purchase PDF](#)

Article preview Special issue articles Cited by (4) Metrics

Abstract

The experimental investigation of AA6063/ZrO₂ metal matrix composites was made by a stir casting method by differing the weight fraction of zirconium dioxide such as 0wt%, 2wt%, and 4wt% and the mechanical properties are studied successfully through various test methods such as microhardness, tensile, and wear. The AA6063/ ZrO₂ metal matrix composites of hardness, UTS, and wear test specimens were prepared as per the ASTM standard. From the hardness and UTS test results, the maximum hardness of 71.0 HV, and the maximum ultimate strength of 168.384Mpa were obtained in the sample of AA6063 with 4wt% ZrO₂ composites. A Pin-on-Disc wear test result revealed the lower wear rate of 2.5*10⁻⁶ mg/m identified in the test sample of AA6063 with 4wt% ZrO₂ composites. The morphology of AA6063/ ZrO₂ composites was studied with help of an SEM test and from its microstructure, uniformly distributed ZrO₂ particulates are identified.

Article preview

- Abstract
- Introduction
- Section snippets
- References (10)

Materials Today: Proceedings

Date: 2023
Pages: 105-109
Volume: [Volume 74, Part 1](#)

Part of special issue

First Virtual International Conference on Latest Trends in Materials and Mechanical Engineering (LTIMME22)
Edited by M Ravichandran, V Mohanavel, M Meignanamoorthy, Mohanraj Murugesan

[View special issue](#)

Published by
materialstoday: PROCEEDINGS

- ❖ The Department of Mechanical Engineering proudly congratulates 24 students for publishing their research papers in the International Conference on Advanced Materials and Modern Manufacturing (ICAMMM 2023) held at Adhi College of Engineering and Technology, Chennai. The conference proceedings were published with ISBN: 978-93-58908-93-0, providing a valuable platform for students to showcase their research contributions and enhance their academic excellence.

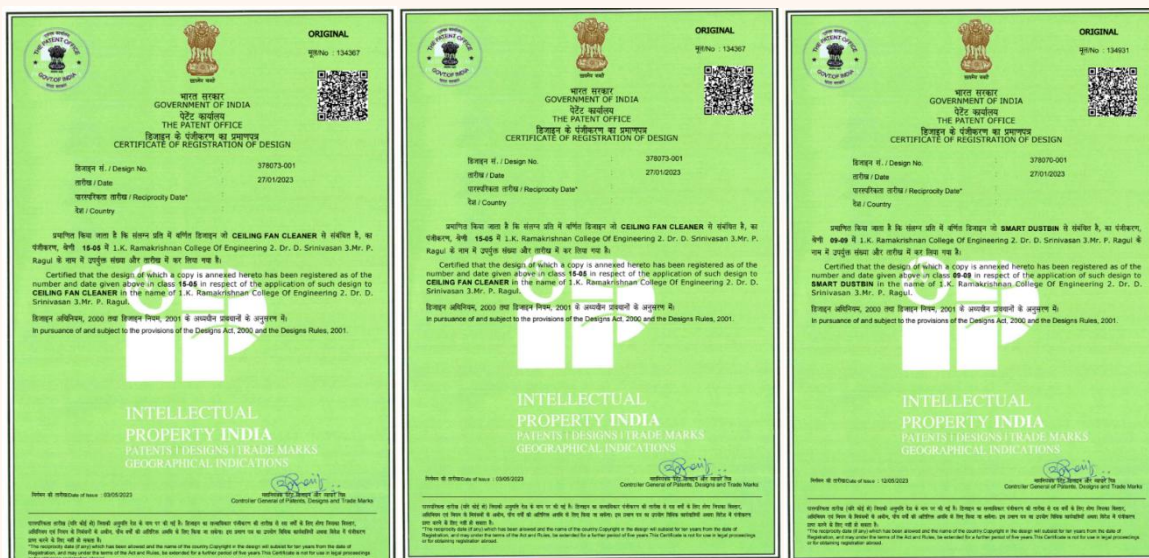
PATENT PUBLICATIONS:

- ❖ Mr. Dr. Jafrey Daniel James D, **Ragul Pushparaj** are the inventors of the Design Patent “Vessel Cleaning Robot”, registered under Design No. 369427-002 on 19-08-2022 at K. Ramakrishnan College of Engineering, Department of Mechanical Engineering.
- ❖ . Kumar, G., & Ramakrishnan, H. (2023). A Cooling System for an Electric Motor and Method Thereof (Indian Patent Application No. 202341018034; Publication No. 13/2023). Published March 31, 2023.
- ❖ D. Srinivasan, P. C. Santhosh Kumar, R. Naveenkumar, M. Meignanammoorthy, M. Ravichandran, **R. Shanmugaraj, J. Samuel Christian, S. Sreeram** are the inventors of the Design Patent “Helmet”, registered under Design No. 369431-001 on 19-08-2022 at KRCE, Department of Mechanical Engineering.



- ❖ D. Srinivasan, P. C. Santhosh Kumar, R. Naveenkumar, M. Meignanammoorthy, M. Ravichandran, **S. Shajid, and F. Simpson Jones Froehly** are the inventors of the Design Patent “Tire Pressure Monitoring Device”, registered under Design No. 369416-001 on 19-08-2022 at KRCE, Department of Mechanical Engineering.

- ❖ Mr. S. Raghuvaran, **S. Vinoth Pandi**, and **S. Suresh** are the inventors of the Design Patent “Device for Electrical Energy Generation”, registered under Design No. 369418-001 on 19-08-2022 at KRCE, Department of Mechanical Engineering.
- ❖ S. Raghuvaran, **G. Venkatesh**, **P. C. Sathish**, and **E. M. Tamil Selvan** are the inventors of the Design Patent “Tile Molding Machine”, registered under Design No. 369421-001 on 19-08-2022 at KRCE, Department of Mechanical Engineering.
- ❖ P. C. Santhosh Kumar, **A. Saisharan**, **U. Mohan Raj**, **A. Rohith**, R. Naveenkumar, and M. Ravichandran are the inventors of the Design Patent “Pipe Type Heat Exchanger”, registered under Design No. 369464-001 on 19-08-2022 at KRCE, Department of Mechanical Engineering.
- ❖ D. Srinivasan, M. Ravichandran, M. Meignanammoorthy, R. Naveenkumar, P. C. Santhosh Kumar, J. **R. Kabilan**, **F. Mohamed Suhaith**, **S. Mohammed Salman Khan**, **U. Rahul Gandhi** are the inventors of the Design Patent “Stairs Climbing Trolley”, registered under Design No. 369453-001 on 19-08-2022 at KRCE, Department of Mechanical Engineering.
- ❖ D. Srinivasan, R. Naveenkumar, M. Ravichandran, M. Meignanammoorthy, P. C. Santhosh Kumar, **R. Kiran Kumar**, **D. Logesh Kumar**, **P. Madessh**, **A. Ramprasad** are the inventors of the Design Patent “Solar Panel Cleaning Machine”, registered under Design No. 369462-001 on 19-08-2022 at KRCE, Department of Mechanical Engineering.
- ❖ B. Srinivasan and H. Ramakrishnan are the inventors of the Design Patent “Pneumatic Coupling System”, filed on 22-11-2022 at KRCE, Department of Mechanical Engineering.



❖ D. Srinivasan, R. Naveenkumar, M. Ravichandran, M. Meignanammoorthy, P. C. Santhosh Kumar, **L. Leo Aswin, S. Kiran Kumar, S. Pradeep Kumar, S. S. Harini Priyanka, R. Kiran Kumar** are the inventors of the Design Patent “Solar Collector”, registered under Design No. 369463-001 on 19-08-2022 at KRCE, Department of Mechanical Engineering.

❖ S. Rajaram, B. Prakash, **R. Manikandan, C. Kousalya, S. Kowshik, R. Kiran Kumar, J. B. Logesvar, C. Nitheeswaran, P. Ragul** are the inventors of the Design Patent “Tractor Trolley”, registered under Design No. 369427-001 on 19-08-2022 at KRCE, Department of Mechanical Engineering.

❖ D. Srinivasan, M. Meignanammoorthy, M. Ravichandran, R. Naveenkumar, P. C. Santhosh Kumar, J. **Libin Lawrance, K. Malarvendhan** are the inventors of the Design Patent “Helmet (Safety Design)”, registered under Design No. 369461-001 on 19-08-2022 at KRCE, Department of Mechanical Engineering.

❖ Jafrey Daniel James, D., & Ragul, P. (2023). Device for Fibre Extraction and a Method Thereof (Indian Patent Application No. 202341039319;

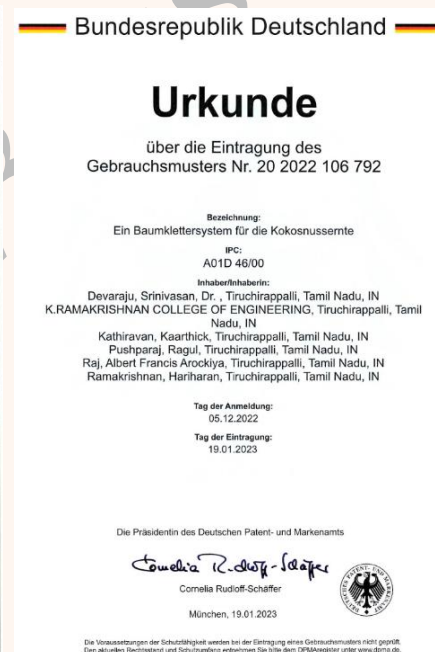
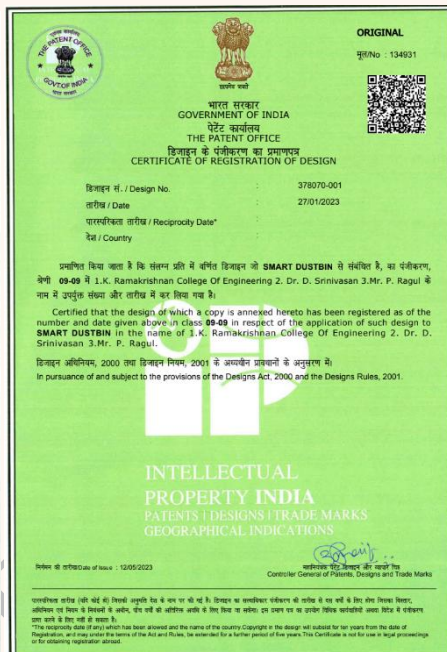
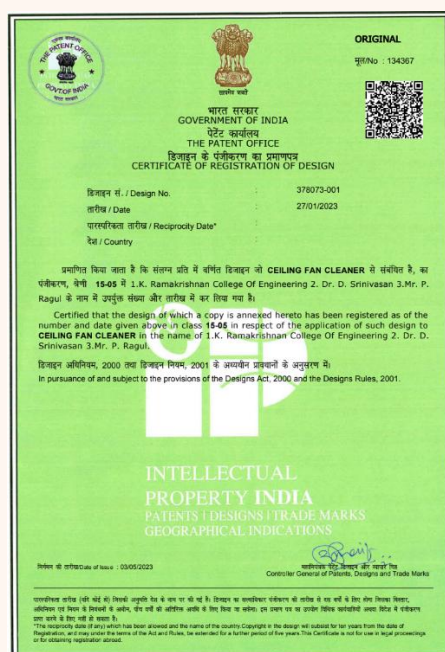
Publication No. 26/2023). Published June 30, 2023.

❖ Srinivasan, D., Albert Francis, A., Ragul, P., & Ramakrishnan, H. (2023).

A Tree Climbing System for Coconut Harvesting (German Patent Application No. 20 2022 106 792.9). Granted January 19, 2023.

❖ Srinivasan, D., Albert Francis, A., Ragul, P., & Ramakrishnan, H. (2023).

An Automated Ceiling Fan Blade Cleaning Machine (South African Patent Application No. 2022/13141). Granted February 22, 2023.



NPTEL COURSE

❖ Congratulations to Mr. Durgaraman S for successfully completing the NPTEL course "Inspection and Quality Control in Manufacturing" (12 Weeks) and earning the certification on 26 March 2023.

❖ Congratulations to Mr. Prasanna S for achieving the prestigious Elite certification in the NPTEL course "Inspection and Quality Control in Manufacturing" (12 Weeks) on 26 March 2023.

❖ Congratulations to Mr. Hariharan R for securing the Elite certification in the NPTEL course "Advanced Machining Processes" (12 Weeks) on 28 October 2023.

- ❖ Congratulations to Ms. Deva R for earning the Elite certification in the NPTEL course "Engineering Metrology" (12 Weeks) on 29 October 2023.
- ❖ Congratulations to Ms. Jaanagi R. P. for earning the Elite certification in the NPTEL course "Engineering Metrology" (12 Weeks) on 29 October 2023.
- ❖ Congratulations to Mr. Mugundhan for successfully completing the NPTEL course "Engineering Metrology" (12 Weeks) on 29 October 2023.
- ❖ Congratulations to Mr. Karthikeyan B for successfully completing the NPTEL course "Engineering Metrology" (12 Weeks) on 29 October 2023.
- ❖ Congratulations to Mr. Panneer Selvam S for earning the Elite certification in the NPTEL course "Engineering Metrology" (12 Weeks) on 29 October 2023.
- ❖ Congratulations to Mr. Abdulla J for successfully completing the NPTEL course "Engineering Metrology" (12 Weeks) on 29 October 2023.
- ❖ Congratulations to Mr. Durgaraman S for earning the Elite certification in the NPTEL course "Engineering Metrology" (12 Weeks) on 29 October 2023.
- ❖ Congratulations to Mr. Kavin Joel Theodore A for successfully completing the NPTEL course "Engineering Metrology" (12 Weeks) on 29 October 2023.
- ❖ Congratulations to Mr. Kowshik A for successfully completing the NPTEL course "Engineering Metrology" (12 Weeks) on 29 October 2023.
- ❖ Congratulations to Mr. Prasanna S for earning the Elite certification in the NPTEL course "Engineering Metrology" (12 Weeks) on 29 October 2023.
- ❖ Congratulations to Mr. Ameerkhan A for successfully completing the NPTEL course "Laser Based Manufacturing" (12 Weeks) on 29 October 2023.

STUDENT UDYAM REGISTRATION

		भारत सरकार Government of India सूक्ष्म, लघु एवं मध्यम उद्यम मंत्रालय Ministry of Micro, Small and Medium Enterprises																							
UDYAM REGISTRATION CERTIFICATE																									
UDYAM REGISTRATION NUMBER			UDYAM-TN-27-0057146																						
NAME OF ENTERPRISE			SHAKO VR DRONES																						
TYPE OF ENTERPRISE *			<table><tr><th>SNo.</th><th>Classification Year</th><th>Enterprise Type</th><th>Classification Date</th></tr><tr><td>1</td><td>2023-24</td><td>Micro</td><td>07/06/2023</td></tr></table>			SNo.	Classification Year	Enterprise Type	Classification Date	1	2023-24	Micro	07/06/2023												
SNo.	Classification Year	Enterprise Type	Classification Date																						
1	2023-24	Micro	07/06/2023																						
MAJOR ACTIVITY			MANUFACTURING																						
SOCIAL CATEGORY OF ENTREPRENEUR			SC																						
NAME OF UNIT(S)			<table><tr><th>S.No.</th><th>Name of Unit(s)</th></tr><tr><td>1</td><td>SHAKO VR DRONES</td></tr></table>			S.No.	Name of Unit(s)	1	SHAKO VR DRONES																
S.No.	Name of Unit(s)																								
1	SHAKO VR DRONES																								
OFFICIAL ADDRESS OF ENTERPRISE			<table><tr><td>Flat/Door/Block No.</td><td>INCUBATION CENTRE</td><td>Name of Premises/ Building</td><td>K.RAMAKRISHNAN COLLEGE OF ENGINEERING</td></tr><tr><td>Village/Town</td><td>NH-45</td><td>Block</td><td>SAMAYAPURAM</td></tr><tr><td>Road/Street/Lane</td><td>MANACHANALLUR</td><td>City</td><td>TRICHY</td></tr><tr><td>State</td><td>TAMIL NADU</td><td>District</td><td>TIRUCHIRAPPALLI , Pin 621112</td></tr><tr><td>Mobile</td><td>8608500496</td><td>Email:</td><td>sabreshwar.s@gmail.com</td></tr></table>			Flat/Door/Block No.	INCUBATION CENTRE	Name of Premises/ Building	K.RAMAKRISHNAN COLLEGE OF ENGINEERING	Village/Town	NH-45	Block	SAMAYAPURAM	Road/Street/Lane	MANACHANALLUR	City	TRICHY	State	TAMIL NADU	District	TIRUCHIRAPPALLI , Pin 621112	Mobile	8608500496	Email:	sabreshwar.s@gmail.com
Flat/Door/Block No.	INCUBATION CENTRE	Name of Premises/ Building	K.RAMAKRISHNAN COLLEGE OF ENGINEERING																						
Village/Town	NH-45	Block	SAMAYAPURAM																						
Road/Street/Lane	MANACHANALLUR	City	TRICHY																						
State	TAMIL NADU	District	TIRUCHIRAPPALLI , Pin 621112																						
Mobile	8608500496	Email:	sabreshwar.s@gmail.com																						
DATE OF INCORPORATION / REGISTRATION OF ENTERPRISE			06/06/2023																						
DATE OF COMMENCEMENT OF PRODUCTION/BUSINESS																									
NATIONAL INDUSTRY CLASSIFICATION CODE(S)			<table><tr><th>SNo.</th><th>NIC 2 Digit</th><th>NIC 4 Digit</th><th>NIC 5 Digit</th><th>Activity</th></tr><tr><td>1</td><td>28 - Manufacture of machinery and equipment n.e.c.</td><td>2829 - Manufacture of other special-purpose machinery</td><td>28299 - Manufacture of other special-purpose machinery n.e.c.</td><td>Manufacturing</td></tr></table>			SNo.	NIC 2 Digit	NIC 4 Digit	NIC 5 Digit	Activity	1	28 - Manufacture of machinery and equipment n.e.c.	2829 - Manufacture of other special-purpose machinery	28299 - Manufacture of other special-purpose machinery n.e.c.	Manufacturing										
SNo.	NIC 2 Digit	NIC 4 Digit	NIC 5 Digit	Activity																					
1	28 - Manufacture of machinery and equipment n.e.c.	2829 - Manufacture of other special-purpose machinery	28299 - Manufacture of other special-purpose machinery n.e.c.	Manufacturing																					
DATE OF UDYAM REGISTRATION			07/06/2023																						
* In case of graduation (upward/reverse) of status of an enterprise, the benefit of the Government Schemes will be availed as per the provisions of Notification No. S.O. 2119(E) dated 26.06.2020 issued by the M/o MSME. Disclaimer: This is computer generated statement, no signature required. Printed from https://udyamregistration.gov.in & Date of printing:- 07/06/2023																									
For any assistance, you may contact:																									

The Department of Mechanical Engineering proudly congratulates **SHAKO VR DRONES** on successfully obtaining its **MSME UDYAM Registration** as a **Micro Enterprise** in the manufacturing sector. This milestone reflects the

entrepreneurial spirit, innovation, and commitment to technological advancement demonstrated by the team. We appreciate their efforts in transforming ideas into impactful industrial solutions and wish them continued growth and success in their future endeavors. **May this achievement mark the beginning of many more milestones in innovation and enterprise development.**

PLACEMENT DETAILS:

Placement Achievement – TVS Sundram Fasteners

K. RAMAKRISHNAN COLLEGE OF ENGINEERING
(AUTONOMOUS)
Permanently Affiliated to Anna University Chennai, Approved by AICTE New Delhi, ISO 9001:2015,
14001:2015 certified institution, Accredited by NBA and with A grade by NAAC
Samayapuram, Tiruchirappalli - 621 112, Tamilnadu.

DEPARTMENT OF MECHANICAL ENGINEERING
(NBA ACCREDITED)

PLACEMENT DETAILS BATCH 2023

Management, Principal and All Staff Members Congratulate the Placed Students

The Department of Mechanical Engineering proudly celebrates the placement success of its final-year students during the academic year **2022-2023**. **A. Ajay, Fazil Ahamed, R. Jegadeesan, K. Kaarthick, P. Manikandan, M. Nithish Nethaji, H. Partha Sarathy, R. Praveen, D. Raja, M. Rajkumar, S. Ranjith, M. Sathishkumar, S.V. Seshadhri, J. Shachin Karthik, R. Sharathkumar, K. Shri Prasanna Venkatesan, P. Siva, T. Sivalingam, B. Srinivasan, G. Sriram, P. Suryaprakash, R. Syed Afridi, M. Udhayan, R. Vairapandi, S. Vijay Athithan, S. Yogesh, R. Arjun, S.R. Keerthivasan, M. Manoj Kumar, V. Mothi Kishore, R. Radhakrishnan, R. Ramesh, M. Saravanan, S. Sreenivasan, A. Sugail Ahamed, Suhail Ahamed, and J.A. Turibius Celestine** secured placements at **TVS Sundram Fasteners** with an annual package of **₹1.98 LPA**. This achievement reflects the students' technical competence, perseverance, and professional readiness fostered through quality education, industrial exposure, and continuous placement training. The Management, Principal, and faculty members extend their heartfelt congratulations and wish them a successful and rewarding career in the manufacturing industry.

Placement Achievement – NCR Corporation (Batch 2019 - 2023)

The Department of Mechanical Engineering proudly congratulates **Abdul Rahim M, Ajmuldeen A, Avinash S, Balavivek M.K., Bill Jerwin B, Dinesh Kumar S, Giridaran R, Gowtham K, Harish S, Infant Gladwin, Jaganathan T, Kabilan K.P., Kamalesh M, Karthick Raja S, Kathirvelan B, Madheswaran V.S., Manikandan C, Mansoor Ali S, Mohan Babu S, Naren Kumar I, Nihamathullah M, Pradeep K, Raja R, Ranjith R, Rohith Vignesh C.S., Senthil Kumar G, Siva A, Sriram V, Subash R, Syedimam A, Uthaya Sathyan C, Xavier Anthony Raj M, Abdul Ajis Jailani J, Brama**

Giri M, and Sanjay A.B. on securing placements at **NCR Corporation** with an annual package of **₹1.80 LPA**. Their achievement reflects their technical knowledge, perseverance, and industry readiness. The department's continuous efforts in skill development, placement training, and industry interaction have played a vital role in this success. The Management, Principal, and faculty members extend their heartfelt congratulations and wish the students a prosperous and rewarding professional journey.



K. RAMAKRISHNAN COLLEGE OF ENGINEERING

(AUTONOMOUS)
 Permanently Affiliated to Anna University Chennai, Approved by AICTE New Delhi, ISO 9001:2015,
 14001:2015 certified institution, Accredited by NBA and with A grade by NAAC
 Samayapuram, Tiruchirappalli - 621 112, Tamilnadu.



DEPARTMENT OF MECHANICAL ENGINEERING

(NBA ACCREDITED)

PLACEMENT DETAILS
BATCH 2023



*Management, Principal and Staff
Members Congratulate the Placed Students*

 BRAMMAGIRI M	 GIRDARAN R	 HARISH S	 Infant Gladwin	 ITHE THIRAVIDAN	 JAGANATHAN T	 AJMULDEEN A	 KARTHICK RAJA S	 KATHIRVELAN B
 MANSOOR ALI S	 NIHAMATHULLAH	 RAJA R	 RANJITH R	 ROHITH VIGNESH CS	 SABARI BALA P	 SENTHIL KUMAR G	 UTHAYA SATHYAN C	 XAVIER ANTHONY RAJM
 SRIRAM V	 VIGNESSHWARAN.M	 SUBASH R	 KAMALESH M	 MANIKANDAN C	 MOHANBABU S	 ABDUL RAHIM M	 BALAVIVEK MK	 NARENKUMAR I
 PRADEEP K	 SIVA K	 SYED IMAM	 ABDUL AZIS JAILANI J	 SANJAY AB	 AVINASH S	 DINESH KUMAR S	 GOWTHAM K	 KABILAN KP





INTERNSHIP DETAILS

- ❖ Mr. R. Shankar, Final Year Mechanical Engineering, successfully completed a 2-Month Internship at ZOHO Corporation from 17.01.2023 to 17.03.2023.
- ❖ Mr. S. Nithish Kumar, Mr. R. Prashanth, and Mr. N. Santhosh, Final Year Mechanical Engineering students, successfully completed a 2-Month Internship at Acoustics India Private Limited from 18.01.2023 to 17.03.2023. The internship enhanced their technical knowledge, practical skills, and industry exposure, contributing significantly to their professional growth.
- ❖ Mr. S. Dinesh Kumar, Final Year Mechanical Engineering, successfully completed a 2-Month Internship at Dowell Engineers from 06.02.2023 to 06.04.2023. The internship enhanced his technical expertise, practical skills, and industry exposure, contributing significantly to his professional growth and career readiness.
- ❖ Mr. S. Karthik Raja, Final Year Mechanical Engineering, successfully completed a 2 Months and 13 Days Internship at the National Skill Development Corporation (NSDC) from 15.02.2023 to 28.04.2023. The internship enriched his technical knowledge, employability skills, and industry exposure, contributing significantly to his professional development.
- ❖ Mr. S. Avinash, Mr. B. Kathirvelan, Mr. C. Manikandan, and Mr. A. Ajmuldeen, Final Year Mechanical Engineering students, successfully completed internships at Yashaswi during January–April 2023.
- ❖ Mr. P. Manikandan, Mr. A. Ajay, Mr. A. Infant Gladwin, and Mr. K. Karthick, Final Year Mechanical Engineering students, successfully

completed internships at TVS Sundram Fasteners Limited during January–April 2023.

- ❖ Mr. R. Hariharan, Mr. S. Harshath, Mr. M. Jegatish, Mr. B. Premnivas, Mr. G. Arul Vel Lingam, and Mr. R. Gurupandian successfully completed an In-Plant Training Programme at Tuticorin Thermal Power Station from 17.01.2023 to 03.02.2023. The programme provided valuable practical exposure to thermal power generation systems, plant operations, and maintenance practices, enriching their industrial knowledge and technical skills.
- ❖ Mr. T. Rakesh and Mr. M. Sheik Abdulla, Mechanical Engineering students, successfully completed an In-Plant Training Programme at Ordnance Factory Trichy from 30.01.2023 to 04.02.2023.

GATE SCORE CARD

Scorecard					
Name of Candidate	ITHE. THIRAVIDAN	 PI23S67429023 THE THIRAVIDAN			
Parent's/Guardian's Name	R. ILANGO VAN				
Registration Number	PI23S67429023				
Date of Birth	22-Jan-2002				
Examination Paper	Production and Industrial Engineering (PI)				
GATE Score: 174		Marks out of 100: 31.33			
All India Rank in this paper: 1096		Qualifying Marks*	General	EWS/OBC (NCL)	SC/ST/PwD
Number of Candidates Appeared in this paper: 3355			44.2	39.7	29.4
Valid up to 31st March 2026 <i>Mohitep</i> Prof. Preetamkumar M. Mohite Organizing Chairman, GATE 2023 on behalf of NCB–GATE, for MoE de7b2e3211106d773f183edc4f0660a1 * A candidate is considered qualified if the marks secured are greater than or equal to the qualifying marks mentioned for the category for which valid category certificate, if applicable, is produced along with this score card.					

The Department of Mechanical Engineering proudly congratulates **Mr. I. The. Thiravidan** on his commendable performance in **GATE 2023 (Production and Industrial Engineering)**. He secured a **GATE Score of 174**, an impressive **All India Rank (AIR) of 1096**, and achieved **31.33 marks out of 100**.

Heartiest congratulations and best wishes for a bright future!



Heartiest Congratulations to Team KRCE!

The Department of Mechanical Engineering proudly congratulates **Team KRCE** for their outstanding participation in the **10th Go-Kart Design Challenge (GKDC) 2023** and for winning the prestigious **Best Aesthetics Award**. Your innovation, creativity, teamwork, and dedication in designing and fabricating an exceptional go-kart have brought great pride to the institution. This remarkable achievement reflects your engineering excellence and commitment to experiential learning.

May this success inspire many more milestones in your journey toward innovation and professional excellence.

Keep Creating. Keep Competing. Keep Achieving!