IMPACT NEWS LETTER

Issue #1

July 2024 – Dec 2024

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Vision of the Department

The department aspires to become a globally recognized centre of excellence by producing competent professionals in Mechanical Engineering to serve as a valuable resource for industry and society.

Mission of the Department

- Impart intellectually rigorous and holistic education to the students in the field of Mechanical Engineering.
- Establish state of-the-art facilities for research and consultancy work.
- Enhance the knowledge and skills of the faculty with the latest advancements in the mechanical engineering domain.
- Mentor the students to develop research and entrepreneurial capabilities.
- Inculcate a high degree of professionalism and contribute to the needs of industry and society.

Programme Educational Objectives

The graduates after completion of the degree will

PEO1	Excel as competent professional or entrepreneur or researcher in related fields of Mechanical Engineering.
PEO2	Analyze, design/develop innovative solutions for real world engineering problems using appropriate modern tools.
PEO3	Exhibit professionalism, ethical attitude and adapt to the changes in the industry and society supporting sustainable development.
PEO4	Lead and manage teams for effective execution of projects.

From the Editor's Desk

Greetings to All,

It gives us great pleasure to present this issue of the Department of Mechanical Engineering newsletter, IMPACT, covering the period July 2024 – December 2024. This edition reflects the sustained academic progress, professional growth, and vibrant activities of our students and faculty during the semester.

The newsletter offers a snapshot of the stimulating academic environment within the department and documents a wide range of initiatives undertaken during this period. It highlights students' active involvement in academic projects, internships, research work, technical competitions, and notable achievements, along with their enthusiastic participation in seminars, workshops, industrial visits, and skill-enhancement programmes. Faculty contributions in teaching, mentoring, and scholarly activities are also captured in this issue.

The collective efforts of students, faculty members, and staff have played a vital role in fostering a culture of innovation, collaboration, and continuous learning. The Editorial Board expresses its sincere appreciation to all contributors whose dedication and support have made this edition of IMPACT possible.

We look forward to receiving valuable feedback and constructive suggestions from our readers, which will help us further improve the quality and relevance of future issues of the newsletter.

With Warm regards,
Editorial Team – IMPACT

Editorial Board

About the Department

The Department of Mechanical Engineering, established in 1998 and permanently affiliated to Anna University, continues to function as a centre of academic excellence with a strong commitment to quality education, research, and student development. The department focuses on outcome-based education and strives to prepare graduates who possess sound technical knowledge, professional competence, and ethical responsibility.

The Mechanical Engineering Department ensures that students are well-prepared to meet contemporary industrial and societal requirements through a curriculum that is periodically updated in line with technological advancements. Academic activities are structured around the three major domains of Design Engineering, Manufacturing Engineering, and Thermal Engineering. These are supported by well-equipped laboratories, project-based learning, and experiential teaching–learning practices. Students are encouraged to apply theoretical concepts to practical problems through internships, industry-linked projects, and hands-on laboratory work, thereby strengthening their analytical, problem-solving, and design skills.

During the period July 2024 – December 2024, the department organized and facilitated a range of academic and professional development activities including Workshops, Seminars, Expert Lectures, Industrial Visits, Internships, Project Reviews, and Faculty Development Programmes. Student professional bodies such as SAE, ASHRAE and IEI Students' Chapter, actively contributed to enhancing students technical competence, leadership qualities, and collaborative skills.

As a partner institute of IIT-PALS, the department continued to engage students and faculty in IIT-PALS masterclasses, technical sessions, mentoring programmes, and innovation-focused activities, providing valuable exposure to advanced technologies and expert guidance from IIT faculty and industry professionals.

With a dedicated faculty team, strong academic and industry linkages, and a culture of continuous improvement, the Department of Mechanical Engineering remains committed to nurturing capable, responsible, and globally competitive engineering graduates.

Academic Toppers

2023-2024 (Even Semester)

IV Sem

First Place

HEMANATHAN SHENOY S
(8.96 GPA)

Second Place

LIYAN AKASH S
(8.23 GPA)

VI Sem

First Place

SRI SURYA S
(8.52 GPA)

Second Place

UKESH M
(8.22 GPA)

VIII Sem

First Place

PRAKASH KOUNDINYAN G
(8.49 GPA)

Second Place

JAYARAMAN K
(8.34 GPA)

Guest Lectures/Seminars/Workshops

Guest Lecture on "Practical Approach on Psychrometry – HVAC System Design"

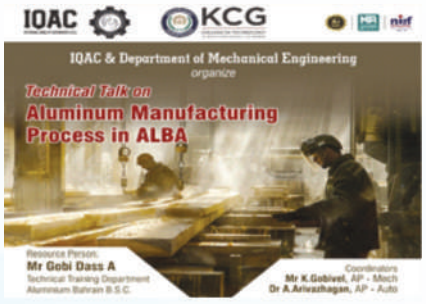
The Department of Mechanical Engineering organized a guest lecture on "Practical Approach on Psychrometry – HVAC System Design" on 28 September 2024 under ASHRAE Student Activities.

The session was delivered by Mr. M. Ijas Ahmed, Senior HVAC Engineer, ENMAC Systems Pvt. Ltd., Chennai. A total of 44 students participated in the programme held in the Mechanical CAD Laboratory.

The lecture focused on real-time applications of psychrometry, load calculations, comfort conditions, and HVAC system selection.The interactive session enhanced students' technical knowledge, industry exposure, and awareness of career opportunities in HVAC.

Technical Talk on "Aluminum Manufacturing Process in ALBA"

The IQAC and the Department of Mechanical Engineering organized a Technical Talk on "Aluminum Manufacturing Process in ALBA" on 25 July 2024 at 10:30 a.m. in the F14 Seminar Hall. The session was delivered by Mr. Gobidass A from the Technical Training Department, Aluminium Bahrain B.S.C. (ALBA), who explained large-scale aluminum manufacturing processes, including raw material processing, production stages, quality control practices, and safety measures. The programme was coordinated by Mr. K. Gobivel, Assistant Professor (Mechanical Engineering), and Dr. A. Arivazhagan, Assistant Professor (Automobile Engineering). The interactive talk provided students with valuable exposure to global industrial standards, recent technological advancements, and career opportunities in the aluminum manufacturing sector, making it highly informative and beneficial.



Participation in IIT-PALS Industry Assisted Deep Learning Series on Industrial Energy Efficiency

Mechanical Engineering students actively participated in the IIT-PALS Industry Assisted Deep Learning Series on "Industrial Energy Efficiency and its Assessment Methodology" conducted during September 2024. The programme featured expert-led sessions by professionals from the Industrial Energy Assessment Cell (IEAC), covering topics such as the need for energy efficiency, assessment

of electrical, mechanical, and thermal utilities, and techniques for improving industrial energy performance. The series also included a concluding session on greenhouse gas emissions and the assessment of Scope 1, 2, and 3 emissions, highlighting sustainability and environmental responsibility. Overall, the programme provided valuable industry exposure and enhanced students' understanding of energy efficiency, assessment methodologies, and sustainable engineering practices aligned with current industrial requirements.

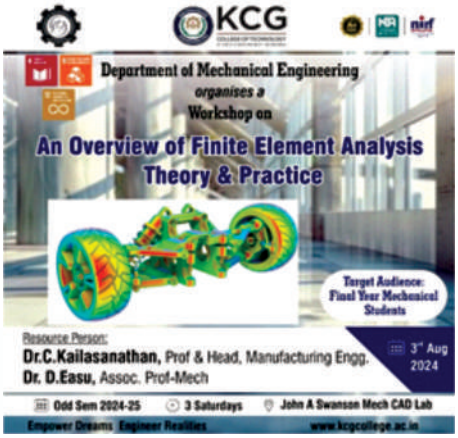
Participation in Seminar on Hydrogen-Powered Internal Combustion Engines

Mechanical Engineering students participated in a seminar on "Innovative Design & Development of Hydrogen-Powered Internal Combustion Engines: A Pathway to Sustainable Transportation" organized by the Department of Mechatronics Engineering, KCG College of Technology, on 31 August 2024 from 11:00 a.m. onwards. The session was delivered by Dr. Karunamurthy K, Professor, School of Mechanical Engineering, VIT Chennai Campus, who highlighted the role of hydrogen as an alternative fuel for sustainable mobility. The seminar covered innovative engine design approaches, combustion characteristics, key challenges, and future research opportunities in hydrogen-powered IC engines. Coordinated by Dr. T. Jayakumar, Assistant Professor – Mechatronics, the interactive programme enhanced students' awareness of green energy solutions and encouraged them to explore research and career opportunities in sustainable and alternative fuel technologies.

Workshop on "Non-Destructive Testing Methods"

The Department of Mechanical Engineering organized a one-day hands-on workshop on "Non-Destructive Testing (NDT) Methods" on 09 October 2024 at the F14 Seminar Hall, KCG College of Technology. The workshop was conducted by Mr. C. P. Venkatesh and Mr. Arunjebaosant, CRG Engineers from SMEC Automation Pvt. Ltd. The session provided students with valuable knowledge about the principles and industrial applications of NDT in ensuring quality, safety, and failure prevention. Students were introduced to various methods such as Ultrasonic Testing, Radiographic Testing, MagneticParticle Testing, and Dye Penetrant Testing with real-time examples. The interactive training helped students connect theoretical concepts with practical industry practices and enhanced their awareness of testing standards and career opportunities in the NDT field.

Workshop on "An Overview of Finite Element Analysis Theory & Practice"



The Department of Mechanical Engineering organized a workshop on "An Overview of Finite Element Analysis (FEA) – Theory & Practice" on 03 August 2024 and two consecutive Saturdays for final year Mechanical Engineering students as part of the Odd Semester 2024–2025 academic activities. Conducted at the John A. Swanson Mechanical CAD Laboratory, the sessions were handled by Dr. C. Kailasanathan, Professor & Head, Manufacturing Engineering, and Dr. D. Easu, Assistant Professor. The workshop introduced students to the fundamentals of FEA such as discretization, meshing, boundary conditions, and solution procedures, along with practical implementation through engineering applications. Using illustrative examples and hands-on discussions, students gained exposure to FEA in structural analysis and product design, enhancing their analytical and computational skills. The programme successfully connected theoretical concepts with practical insight, preparing students for industry-oriented design analysis and higher studies.

Skill Development Programme on "AutoCAD Essentials: Skills for Design"

The Department of Mechanical Engineering organized a hands-on workshop titled "AutoCAD Essentials: Skills for Design" on 03 August 2024 at the John A. Swanson Mechanical CAD Laboratory for second year Mechanical Engineering students. The programme aimed to strengthen students' foundational design and drafting skills. The workshop was led by Mr. T. Manikandan, Assistant Professor, Mechanical Engineering, who introduced students to the basics of computer-aided drafting such as interface navigation, drawing commands, dimensioning, and modification tools used in mechanical design. Through practical exercises and guided drawing sessions, students actively participated and gained exposure to industry-relevant drafting practices. The workshop enhanced their confidence in using AutoCAD for academic projects and future design applications, serving as an effective platform for building essential CAD competencies.

Technical Talk on "Advanced HVAC System Optimization & Energy Management"

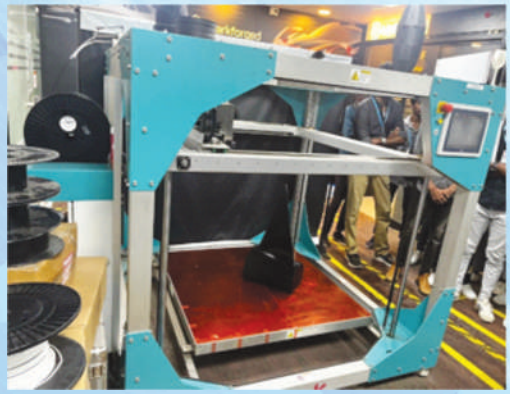
The Department of Mechanical Engineering organized a Technical Talk on "Advanced HVAC System Optimization & Energy Management" on 31 August 2024 for third year Mechanical Engineering students. The session was conducted by Mr. L. Ramesh Krishnan, Assistant Professor, Mechanical Engineering, with the aim of improving students' knowledge of energy-efficient HVAC system design and operation. The talk covered important topics such as HVAC components, energy consumption patterns, optimization techniques, and strategies to enhance energy efficiency in commercial and industrial buildings. Real-time examples and practical insights helped students connect theoretical concepts with real-world applications. Through active discussions and problem-solving activities, students gained exposure to sustainable HVAC practices and energy management principles. The session successfully increased students' awareness of modern HVAC optimization methods aligned with industry and sustainability needs.

Technical Symposium – Vivanta'24 (Mechamorphis Events)

The Department of Mechanical Engineering successfully organized a series of technical events as part of the Technical Symposium VIVANTA'24, held on 4th and 5th October 2024, with active participation from students of various engineering colleges. Under the banner "MECHAMORPHIS", the department conducted major competitions such as Paper Presentation, Lathe Master, and CAD Champion to enhance students' technical knowledge, practical skills, and innovative thinking. The Paper Presentation event provided a platform for participants to present research ideas on emerging engineering topics, while the Lathe Master competition tested machining skills, precision, and safety practices. The CAD Champion event evaluated students' expertise in computer-aided design and modeling tools. The events received enthusiastic participation from multiple institutions and were judged by experienced faculty members. Attractive cash prizes were awarded to the winners, encouraging students to excel in both technical and practical competencies. Overall, the successful conduct of these events highlighted the department's dedication to promoting technical excellence, industry-relevant skills, and inter-collegiate collaboration, making VIVANTA'24 a memorable learning experience for all participants.

Industrial Visit to 3d Monotech, Ambattur, Chennai

Final Year Mechanical Engineering students visited 3D Monotech, Ambattur, Chennai, on 09 August 2024 as part of an industrial exposure programme, with 26 students participating. The visit provided valuable insights into advanced manufacturing practices, especially in 3D printing, prototyping, and modern production techniques. Industry professionals explained additive manufacturing technologies, material selection, design considerations, and quality control measures used in real-time applications. Students gained practical understanding of the complete process of converting digital designs into physical components. The interaction with experts also helped students learn about current industry trends, challenges, and career opportunities in advanced manufacturing. Overall, the visit was highly informative and strengthened students' technical knowledge and industry readiness.



Students Participation and Achievements

The students of the Department of Mechanical Engineering actively participated in a wide range of academic, technical, professional, and co-curricular activities during the academic period, showcasing their enthusiasm for learning beyond the classroom and their commitment to holistic development.

Participation in Symposiums, Seminars, Workshops and Conferences

- Final year Mechanical Engineering students Sri Surya and Suresh participated in a prestigious Panel Discussion on "Graphene Applications in Aerospace and Defence", held at Hindustan University on 14 September 2024. The session featured Nobel Laureate Sir Andre Konstantin Geim, Regius Professor, University of Manchester, providing students with rare exposure to cutting-edge research and global perspectives.
- Final year student Daniel Samraj attended a Six-Day Short-Term Training Programme (STTP) titled "Mastering Advanced Composites: Hands-on Training and Industry Insights", organized by the Department of Mechanical Engineering in association with the Centre for Composites and Advanced Materials at SRM Institute of Science and Technology, Kattankulathur, during 23rd, 25th, and 26th September 2024.
- A group of 18 third-year Mechanical Engineering students participated in SEED–2024 (Sustainability, Energy Efficiency and Decarbonisation), a One-Day International Conference organized by ASHRAE Chennai Chapter and L&T Construction, held at L&T Convention Hall, Chennai, on 31 August 2024.
- Third-year student E. Harini attended a workshop on "Elegant Graces: Navigating Dresses and Dining Etiquettes", presented by Ms. Bela Susan Thomas, Product Marketer, Zoho Corporation, at KCG College of Technology on 31 August 2024, focusing on professional etiquette and personality development.

Paper Presentation

Students Hemanathan Shenoy (III Year Mech) and K. Dinesh (IV Year Mech) presented a research paper titled "Innovation Design and Development of a 3D Printed Micro Gripper Utilizing Compliant Mechanism for Precision Manipulation" at the 2nd International Conference on Technological Advancements in Materials, Design, Manufacturing and Energy Sectors, held at St. Joseph's College of Engineering on 22 August 2024.

Awards and Recognitions

Students also brought laurels to the department through their achievements in technical, cultural, and sports events.

- Shazin Jamsheed (III Year) secured Second Prize in the Fireless Cooking Competition organized by the KCG TECH Wellness Club on 31 August 2024.
- E. Harini (III Year) participated in the IGC–RDC–SEL–TRG 1 NCC Camp held at Tamil Nadu Physical Education and Sports University, Melakottaiyur, from 03 to 12 September 2024.
- Abhinav P. and R. Roshan (II Year Mech) won Third Place in Football at the Zonal Level, conducted by Anna University on 28 September 2024.

- P. Saravanan (II Year Mech) won a Bronze Medal in Judo (+90 kg category) at the Regional Level competitions for The Chief Minister's Trophy, organized by the Sports Development Authority of Tamil Nadu at Nehru Stadium, during September 2024.
- B. Sri Sanjay (III Year Mech) secured Second Place in CAD Champion–2024 during the Technical Symposium VIVANTA'24, held at KCG College of Technology on 04 October 2024.
- E. Harini (III Year Mech.) of Fusion-Six, participated in Smart India Hackathon (SIH) 2024, Hardware Edition, at Grand Finale 2024, conducted at The National Institute of Engineering, Mysuru, from 11th to 15th December 2024.
- K Jayaraman (IV Year Mech.) has been recognized as Finalists in INDIA DESIGN WEEK Competition held during the year 2023 – 2024, conducted as INDIA DESIGN WEEK 2024, by ICT Academy, powered by Autodesk.

The diverse achievements and active participation of students reflect the department's emphasis on academic excellence, professional readiness, leadership development, and all-round growth.

Faculty Participation and Achievements

The faculty members of the Department of Mechanical Engineering actively participated in various national-level conferences, workshops, and academic discussions, contributing to continuous professional development and enriching the academic ecosystem for students.

Faculty Participation in Seminars, Workshops, and Conferences

- Mr. L. Ramesh Krishnan participated in the Sustainability, Energy Efficiency and Decarbonisation (SEED–2024) Conference, held on 30 August 2024. The conference provided valuable insights into sustainable engineering practices, energy-efficient technologies, and decarbonisation strategies, enabling participants to understand emerging trends aligned with global sustainability goals.
- A One-Day Workshop on "Generative Artificial Intelligence" was attended by Dr. C. Kailasanathan, Dr. S. Kaliappan, and Dr. S. Jesudass Thomas at KCG College of Technology on 10 September 2024. The workshop was delivered by Mr. Jai Ganesh Suresh, AI Architect at Ericsson, and focused on the fundamentals, applications, and future scope of Generative AI in engineering education and research.
- Dr. C. Kailasanathan also participated in a Panel Discussion on "Graphene Applications in Aerospace and Defence", organized at Hindustan University on 14 September 2024. The session featured Nobel Laureate Sir Andre Konstantin Geim, Regius Professor and Royal Society Research Professor, University of Manchester, and Nobel Prize Awardee in Physics (2010). The interaction provided valuable exposure to advanced materials research and its applications in high-impact engineering domains.

The active involvement of faculty members in these academic and professional events reflects the department's commitment to continuous learning, interdisciplinary exposure, and the integration of contemporary knowledge into teaching and research practices.

Faculty Participation in Faculty Development Programme

Faculty members of the Department of Mechanical Engineering actively participated in several Faculty Development Programmes (FDPs) and ATAL–FDPs during the academic year 2024 –2025, reflecting the department's continued commitment to academic excellence, research advancement, and professional growth.

- Four faculty members—Dr. C. Kailasanathan, Dr. D. Easu, Dr. S. Jesudass Thomas, and Dr. M. Vignesh Kumar—successfully completed a Five-Day National FDP on "Metal Additive Manufacturing: From Advances to Adaptability", conducted at St. Joseph's Institute of Technology, Chennai, from 4 to 8 November 2024. The programme provided in-depth exposure to emerging trends, materials, processes, and industrial applications in metal additive manufacturing, strengthening research and teaching capabilities in advanced manufacturing technologies.
- Mr. Ramesh Krishnan and Mr. I. Manikandan participated in an ATAL–FDP on "Engineering Solutions for a Sustainable Future: Uniting Disciplines to Tackle Carbon Footprint Reduction", held at KCG College of Technology from 4 to 9 November 2024. The programme emphasized interdisciplinary approaches, sustainable engineering practices, and strategies for carbon reduction, aligning academic delivery with global sustainability goals.
- Mr. I. Manikandan attended a National FDP on "Effective Proposal Writing for Extramural Funding and Patentability of Ideas and Design", conducted at KCG College of Technology from 2 to 6 July 2024, which enhanced competencies in research proposal development, intellectual property rights, and innovation commercialization.
- Mr. L. Ramesh Krishnan participated in a College-Level FDP on "Teaching–Learning, Examination, and HR Practices" held from 8 to 12 July 2024, focusing on pedagogical effectiveness, assessment reforms, and academic administration.
- Further strengthening expertise in advanced domains, Dr. V. Gopal attended a Five-Day National FDP on "Advanced Materials and Manufacturing and Applications", organized by St. Joseph College of Engineering from 22 to 26 July 2024.

The knowledge and insights gained from these FDPs contribute significantly to curriculum enrichment, innovative teaching methodologies, research productivity, and enhanced student learning outcomes, thereby reinforcing the department's academic and professional standards.

Faculty Contributions as Resource Person

Faculty members of the Department of Mechanical Engineering actively contributed to academic and professional forums by serving as resource persons and academic leaders at national and international platforms, thereby strengthening institutional visibility and knowledge dissemination.

- Mr. L. Ramesh Krishnan served as a Guest Lecturer on 14 June 2024 at the CFD Division, Academic Interaction Office, NSTL–DRDO, Visakhapatnam. He delivered an expert lecture on "HVAC Heat Load Calculation and CFD Simulations", providing insights into practical design methodologies and advanced simulation techniques relevant to defence and industrial applications.
- Dr. S. Kaliappan delivered a Guest Lecture on "Emerging Technology in Computational Fluid Dynamics" during a Five-Day Online Faculty Development Programme organized by the UC Cell and IIC–GKCEM, in association with the Departments of Electrical Engineering and Computer Science & Engineering, GKCEM, from 15 to 19 July 2024. The session focused on recent developments and interdisciplinary applications of CFD in engineering systems.
- Further extending his academic leadership, Dr. S. Kaliappan also served as a Session Chair at the International Conference on Advancements in Engineering, Science & Management (ICAESM–2024) held on 30 August 2024, jointly organized by the Department of Computer Science and Engineering, Radhakrishna Institute of Technology and Engineering, Bhubaneswar, and Global Conference Hub, Coimbatore. His role contributed to effective technical deliberations and quality assessment of research presentations.
- A Virtual Faculty Development Programme on "Advanced Materials and Technologies: Bridging Innovations in Civil and Mechanical Engineering" was organized by the Department of Mechanical and Civil Engineering, Sree Sakthi Engineering College, Karamadai, Coimbatore, on 10 July 2024 through Microsoft Teams. The programme was delivered by Dr. C. Kailasanathan, Professor & Head, Manufacturing Engineering, KCG College of Technology, Chennai. The session highlighted recent advancements in materials, interdisciplinary innovations, and their practical relevance to civil and mechanical engineering applications.

These engagements reflect the department's strong academic expertise and its faculty's active involvement in knowledge sharing, professional networking, and research-oriented academic leadership at national and international levels.

Awards and Recognitions Received by the Faculty

Faculty members of the Department of Mechanical Engineering received several prestigious awards and recognitions during the academic year, reflecting their excellence in research, mentoring, and long-standing service to the institution.

- Dr. S. Kaliappan was recognized as a Top 2% Scientist globally, as identified by Stanford University and published in the Elsevier Data Repository in September 2024. This distinguished recognition highlights his significant research impact and scholarly contributions at the international level.
- Dr. M. Vignesh Kumar received the Dr. Kalam Best Mentor Award from the World Youth Federation, presented by Mr. Santhosh Muruganantham, Co-Founder of Kolapasi, on 26 October 2024, in recognition of his exemplary mentorship and commitment to student development. He was also honoured with the Innovative Mentor Award during the Chairman's Award Function organized by KCG College of Technology on 30 October 2024, acknowledging his innovative teaching and mentoring practices.
- In recognition of their dedicated service spanning over a decade, several faculty members were honoured during the Chairman's Award Function held on 30 October 2024 at KCG College of Technology. The awardees include Dr. Z. Edward Kennedy, Dr. D. Easu, Dr. V. Gopal, and Dr. S. Jesudass Thomas, whose sustained contributions have significantly strengthened the department's academic and administrative growth.

These accolades underscore the department's culture of academic excellence, research distinction, effective mentoring, and institutional commitment, reinforcing its role as a centre of quality engineering education.

Research Publications & Funding

Paper Presentations by Faculty in Conferences

Faculty members of the Department of Mechanical Engineering actively contributed to scholarly research by presenting their work at reputed national and international conferences during the academic year, demonstrating the department's strong research culture and interdisciplinary expertise.

- Mr. L. Ramesh Krishnan presented a research paper titled "Numerical Analysis of Distribution and Deposition Rate of Respiratory Droplets and Aerosol Particles in an Underfloor Air Conditioning Room" at the 8th National and 2nd International Conference on Refrigeration and Air Conditioning (NCRAC 2024) held at IIT Madras in March 2024. The study provided valuable insights into indoor air quality, ventilation effectiveness, and occupant safety, with relevance to sustainable HVAC system design.
- Mr. K. Gobivel presented a paper titled "AI Powered Smart Backyard" at the International Conference on Digital Technologies for Sustainable Agriculture, organized by VIT, Chennai, during 08–10 October 2024. The work highlighted the application of artificial intelligence in smart and sustainable agricultural practices, emphasizing innovation at the intersection of mechanical systems and digital technologies.
- Dr. V. Gopal presented the paper "Innovative Design and Development of a 3D Printed Microgripper Utilizing Compliant Mechanism" at the 2nd International Conference on Technological Advancements in Materials, Design, Manufacturing and Energy Sector, held at St. Joseph's College of Engineering on 21–22 August 2024. The research showcased advancements in additive manufacturing and precision mechanism design with potential applications in micro-manipulation and automation.

These research contributions reflect the department's commitment to knowledge creation, interdisciplinary research, and active engagement with emerging technologies, strengthening its academic and research profile at national and international levels.

Research Publications – Faculty Achievements

During the academic year 2024–2025, the faculty members of the Department of Mechanical Engineering demonstrated strong research performance by publishing over 20 research papers and book chapters in reputed international journals and conference proceedings. These publications appeared in high-impact journals such as Applied Thermal Engineering, Renewable Energy, Journal of Thermal Analysis and Calorimetry, Case Studies in Thermal Engineering, Environmental Science and Pollution Research, BMC Chemistry, and Proceedings of the Institution of Mechanical Engineers, along with international conference proceedings indexed in E3S Web of Conferences and ASME journals.

A significant proportion of these publications were published in Q1 and Q2 quartile journals, reflecting the quality, relevance, and global recognition of the department's research contributions. The research works addressed contemporary engineering challenges in the areas of advanced materials, metal matrix composites, thermal and energy systems, additive manufacturing, artificial intelligence in manufacturing, renewable energy technologies, and sustainable engineering solutions.

These scholarly contributions underscore the department's strong research culture, interdisciplinary approach, and commitment to advancing knowledge aligned with emerging technologies and industrial applications.

Patent Publications – Faculty Achievement

The Department of Mechanical Engineering proudly recognizes the patent publication by Dr. S. Jesudass Thomas for his innovative work on advanced composite materials. The invention, focusing on the synthesis, fabrication, and mechanical characterization of glass fiber reinforced epoxy composites filled with silicon carbide fillers, has been granted Patent Application No. 202441091474. The patent was officially published on 24 November 2024, highlighting the department's sustained efforts in research excellence, innovation, and intellectual property creation.

Faculty Funded Projects – Sanctioned Grants

The Department of Mechanical Engineering is pleased to highlight the successful sanction of funded projects secured by its faculty members during the academic year. Dr. M. Arulprakasajothi received a research grant of ₹3.5 lakhs under the ATAL Faculty Development Programme (FDP) scheme to conduct FDP on the title "Engineering Solutions for Sustainable Future: Uniting Disciplines to Tackle Carbon Footprint Reduction", supporting academic and research initiatives aligned with advanced engineering education.

In addition, Dr. M. Vignesh Kumar was sanctioned a grant of ₹11,96,600 as the Single Point of Contact (SPOC) for conducting the SMART India Hackathon (SIH), enabling the effective coordination and implementation of this prestigious national-level innovation programme.

These funded projects reflect the department's strong research culture and its faculty's active engagement in securing competitive grants that promote innovation, capacity building, and student-centric learning.

Faculty Development Programme Conducted

A Five-Day Faculty Development Programme titled "Crafting the Future: AI, Robotics, and 3D Printing in the Manufacturing & Automotive Sector" was successfully conducted from 08 July 2024 to 12 July 2024 in hybrid mode by the Departments of Mechanical, Automobile, and Mechatronics Engineering, KCG College of Technology. The programme was inaugurated by Mr. Sukhpreet Singh, CEO, TANSAM.

The FDP witnessed active participation from 51 external participants (online) and 15 internal participants (offline), bringing together faculty members, researchers, and industry professionals. Renowned experts from academia and industry delivered technical sessions covering emerging manufacturing technologies and Industry 4.0 practices.

The programme featured sessions on Artificial Intelligence and Machine Learning in Manufacturing, Digital Twin Solutions, Ceramic and Additive Manufacturing, AI-driven Automotive Manufacturing, Industry 4.0 and Smart Manufacturing, and AI applications in the Rubber Industry. A hands-on training session on Autodesk Fusion 360 conducted by ICT Academy in collaboration with Autodesk Pvt. Ltd. provided practical exposure to AI-enabled design and generative manufacturing.

Resource persons from leading institutions and industries, including IIT Jammu, Anna University, Ford India, Thejo Engineering Pvt. Ltd., Presidency University, and technology-driven enterprises, shared valuable insights on real-time industrial applications, predictive maintenance, smart factories, and advanced materials.

The FDP significantly enhanced participants' understanding of AI, robotics, and 3D printing technologies, strengthened industry–academia interaction, and equipped faculty members with contemporary knowledge to integrate emerging technologies into teaching and research practices.

ATAL FDP Titled "Engineering Solutions for Sustainable Future: Uniting Disciplines to tackle Carbon Foot print Reduction"

An ATAL-sponsored Six-Day Faculty Development Programme (FDP) titled "Engineering Solutions for Sustainable Future: Uniting Disciplines to Tackle Carbon Footprint Reduction" was successfully conducted from 04 November 2024 to 09 November 2024 at KCG College of Technology. The programme was coordinated by Dr. M. Arulprakasajothi, Professor, Department of Mechanical Engineering.

The FDP brought together eminent experts from premier institutions, research organizations, and industry, including IIT Madras, IIM, SRM Institute of Science and Technology, Carbon Capco Pvt. Ltd., Aquaconnect, Monotech Systems Ltd., Samyuk Sustainable Solutions, and other sustainability-focused enterprises. The sessions addressed interdisciplinary approaches to carbon footprint reduction, sustainable engineering solutions, digital transformation, biomimicry, advanced manufacturing, nanotechnology, and environmental management practices.

The programme emphasized practical strategies for sustainability through expert lectures, case studies, and interactive discussions, enabling participants to gain insights into innovative technologies and policy-driven solutions for environmental challenges. Faculty members benefited from exposure to contemporary research trends and industry practices related to sustainable development.

The FDP significantly strengthened interdisciplinary collaboration, enhanced faculty awareness on sustainability-driven engineering solutions, and reinforced the institution's commitment to promoting environmentally responsible and future-ready engineering education.

MOU'S SIGNED

The Department of Mechanical Engineering strengthened its industry–academia collaboration by signing Memoranda of Understanding (MoUs) with reputed industrial organizations during the academic year.

An MoU was signed with Thejo Engineering Ltd. on 17 July 2024, aimed at fostering collaboration in areas such as industry-oriented training, internships, expert lectures, joint projects, and knowledge exchange in advanced engineering applications.

Subsequently, the department entered into an MoU with Monotech Systems Ltd. on 28 October 2024, focusing on skill development in advanced manufacturing technologies, CAD/CAM solutions, automation, and industry-relevant hands-on training for students and faculty.

These strategic collaborations are expected to enhance experiential learning, promote industry-relevant competencies, and provide greater exposure to real-world engineering practices, thereby strengthening students' employability and research capabilities.

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