



KCG
COLLEGE OF TECHNOLOGY

IMPACT NEWS LETTER

Issue #1

July 2022 – December 2022



KCG Nagar, Old Mahabalipuram Road, Karapakkam, Chennai-600 097
www.kcgcollege.ac.in

Vision

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

- 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!

We are pleased to present this issue of IMPACT, the Newsletter of the Department of Mechanical Engineering, covering the period July 2022 – December 2022. This edition reflects the steady progress, dedication, and collaborative efforts of our students and faculty during the semester.

The newsletter provides an overview of the dynamic academic environment within the department and highlights the key initiatives undertaken during this period. It showcases students' active engagement in academic coursework, projects, internships, research activities, technical events, and competitions. Their participation in seminars, workshops, industrial visits, and professional development programmes demonstrates their commitment to continuous learning and professional growth. The issue also features significant faculty contributions in teaching, research, mentoring, funded projects, publications, and other scholarly activities.

The sustained commitment of our students, faculty members, and staff continues to foster a culture of academic excellence, innovation, and teamwork within the department. The Editorial Team expresses its sincere appreciation to all contributors for their valuable support in bringing out this edition of IMPACT.

We welcome feedback and constructive suggestions from our readers to further enhance the quality and impact of future editions.

With Best Regards,

Editorial Team – IMPACT

About The Department

Established in 1998 and permanently affiliated to Anna University, the Department of Mechanical Engineering continues to uphold its legacy of academic excellence, with a strong focus on quality education, research, and professional advancement. During the period July 2022 – December 2022, the department functioned in alignment with the Anna University R2021 curriculum, ensuring structured and outcome-based academic delivery.

Under the R2021 regulations, the academic framework emphasized outcome-based education, skill-oriented learning, and interdisciplinary exposure. The curriculum was designed to integrate fundamental principles with contemporary technological developments, addressing both industry requirements and societal needs. Academic activities were organized around the core areas of Design Engineering, Manufacturing Engineering, and Thermal Engineering, supported by modern laboratories, project-based learning, and experiential teaching-learning practices.

Students were encouraged to apply theoretical concepts through internships, industry-supported projects, laboratory-intensive courses, and mini and major projects as prescribed under R2021. This approach strengthened their technical proficiency, analytical reasoning, problem-solving ability, and professional competence.

During this period, the department conducted several academic and professional development initiatives, including workshops, seminars, expert lectures, industrial visits, internships, project reviews, and faculty development programmes. Student chapters such as SAE and the IEI Students' Chapter actively facilitated technical activities and leadership opportunities, contributing to overall student development.

As a partner institute of IIT-PALS, the department continued its participation in IIT-PALS masterclasses, mentoring programmes, and innovation-driven engagements, enabling exposure to advanced technologies and expert guidance from IIT faculty and industry professionals.

With a dedicated faculty team, strong industry linkages, and a commitment to continuous improvement, the Department of Mechanical Engineering remains steadfast in nurturing competent, ethical, and globally competitive engineering graduates.

Editorial Board

Editor:

Dr. M Vignesh Kumar

Co-Editors:

DHANUSH N – IV Year Mechanical Engg.

SNEHA C – IV Year Mechanical Engg.

Student Reporters:

JAYARAMAN K - III Year Mechanical Engg.

MUKESH KANNA M – III Year Mechanical Engg.

SRI SURYA S - II Year Mechanical Engg.

HARRISH KISHORE V - II Year Mechanical Engg.

ACADEMIC TOPPERS
2021 – 2022 (Even Semester)

IV SEM

First Place



Dhanasekar R
(8.25 GPA)

Second Place



Prakash Koundinyan G
(8.1 GPA)

VI SEM

First Place



Sneha C
(8.875 GPA)



Hari Kishore N

Second Place



Aswin Venugopa
(8.67 GPA)

VIII SEM

First Place



S Sridharan
(9.04 CGPA)

Second Place



Vamsi Sai Krishna Reddy
(8.75 CGPA)

Guest Lecture – Alumnus Talk on Bright Opportunities in Mechanical Engineering

The Department of Mechanical Engineering organized an inspiring alumnus talk on "Bright Opportunities in Mechanical Engineering" on 20th August 2022. The session was delivered by Mr. Agasthya Raghavan, a proud alumnus from the 2018 batch.

During the session, he shared valuable insights about emerging career opportunities in core mechanical industries, interdisciplinary domains, and higher studies prospects. He highlighted the importance of developing technical expertise, industry-relevant skills, software proficiency, and continuous learning to remain competitive in today's dynamic engineering landscape.



Mr. Agasthya also motivated students by sharing his professional journey, challenges faced after graduation, and strategies for career growth. His practical suggestions on internships, certifications, networking, and skill enhancement were highly beneficial to the participants.

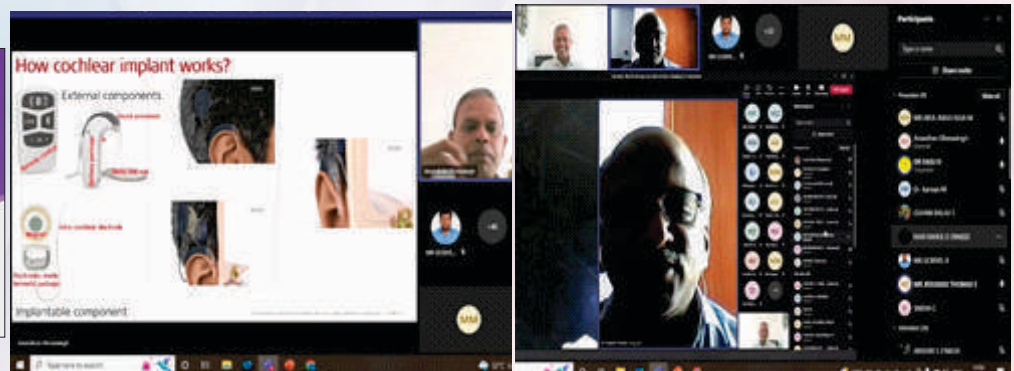
The session was interactive, with students actively engaging in discussions and clarifying their career-related queries. The talk served as an eye-opening experience, encouraging students to explore diverse opportunities in mechanical engineering and plan their careers with clarity and confidence.

Guest Lecture – Alumnus Talk on Hearing Loss and Cochlear Implant

The Department of Mechanical Engineering at KCG College of Technology organized an Alumni Talk on 03 September 2022 on the topic "Hearing Loss and Cochlear Implant." The session was delivered by Dr. Anandhan Dhanasingh, Manager at MED-EL, Innsbruck, and a proud alumnus of the 2002 batch of the institution.

Dr. Dhanasingh provided valuable insights into the causes and diagnosis of hearing loss and elaborated on the design, components, and working principles of cochlear implants. He highlighted the role of engineering innovation in developing advanced auditory prosthetic devices that significantly improve the quality of life for individuals with severe hearing impairment. The session also offered students exposure to global industry practices and interdisciplinary applications of mechanical engineering in the biomedical field.

The talk was highly informative and inspiring, motivating students to explore emerging opportunities in medical technology and research. The department sincerely thanks Dr. Anandhan Dhanasingh for his enriching contribution and continued engagement with his alma mater.



Guest Lecture – Alumnus Talk on Basics of GD&T

On 14 September 2022, the III Year Mechanical Engineering students attended an online session on "Basics of GD & T" organized by Indian Machine Tool Manufacturers' Association (IMTMA) as part of its Online Training Series.

The session focused on the fundamentals of Geometric Dimensioning and Tolerancing (GD&T), including standard symbols, feature control frames, datums, form and position tolerances, and their interpretation in engineering drawings. The resource person emphasized the importance of GD&T in ensuring product quality, interchangeability, and functional requirements in manufacturing and assembly processes. Practical examples from the machine tool and automotive industries were discussed to help students understand real-world applications.

The online training provided valuable exposure to industry standards and best practices in technical drawing and design. The session enhanced the students' understanding of design intent communication and strengthened their preparedness for careers in design and manufacturing engineering.



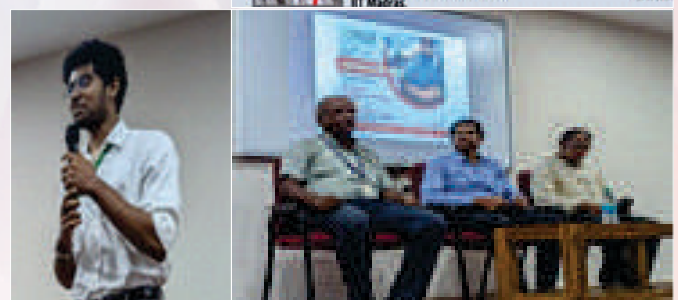
Guest Lecture – Engineers Day Celebration with Lecture on Pillars of Smart Manufacturing

On 16 September 2022, as part of the Engineers' Day Celebrations, the Department of Mechanical Engineering organized a special guest lecture on "Pillars of Smart Manufacturing." The session was delivered by Dr. G. L. Samuel, Professor at Indian Institute of Technology Madras.

Dr. Samuel highlighted the key pillars of Smart Manufacturing, including automation, Industrial Internet of Things (IIoT), cyber-physical systems, artificial intelligence, data analytics, and digital twin technology. He emphasized the significance of Industry 4.0 in transforming traditional manufacturing systems into intelligent, interconnected, and efficient production environments. The session provided students with valuable insights into emerging technologies and future industry expectations.

As part of the Engineers' Day celebrations, several student activities were also conducted. Mr. Dhanush Nithil and Ms. Sai Shruthi of Final Year Mechanical Engineering delivered speeches highlighting the importance of Engineers' Day, the contributions of engineers to society, and the responsibilities of future engineers. Mr. K. R. Dhanush of Final Year Mechatronics shared his experience in the SUPRA SAE event, presenting a detailed overview of the team's participation, design process, and achievements. He also conducted a demonstration and presentation of the recently won projects, which was highly appreciated by the students and faculty.

The programme successfully blended expert knowledge sharing with student participation, making the Engineers' Day celebration both enriching and inspiring. The department extends its sincere gratitude to Dr. G. L. Samuel and the participating students for making the event a grand success.



Workshop – One Day Workshop on Digital Technologies for Intelligent Products

As part of the 80th Birthday Celebrations of our respected Chairperson Madam, the Department of Mechanical Engineering organized a One Day Workshop on "Digital Technologies for Intelligent Products" on 23 September 2022 for the Mechanical Engineering students.

The workshop aimed to provide insights into emerging digital technologies that are transforming product development and manufacturing industries. The programme featured distinguished experts from academia and industry who delivered highly informative sessions.

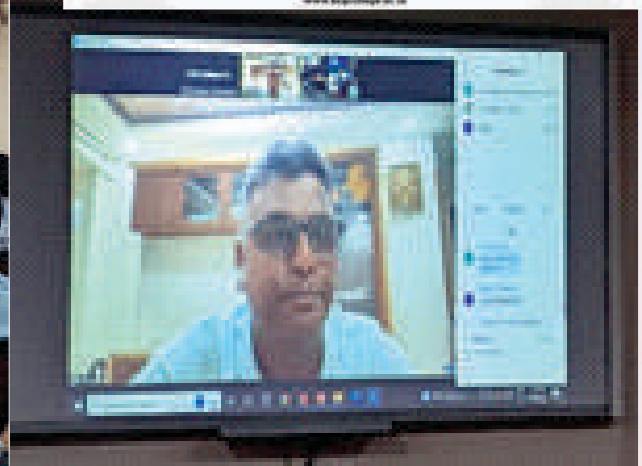
Dr. S. Guru Prasad, Industry Expert in Machine Learning, delivered the first lecture on "Foundations of Machine Learning," introducing students to the fundamentals of ML concepts and their applications in intelligent product development. Dr. S. Anand Kumar, Ph.D., from the Indian Institute of Technology Jammu, presented the second lecture on "Digital Manufacturing with 3D Printing," highlighting advancements in additive manufacturing and its industrial applications. The third session on "Digital Twin" was delivered by Dr. N. Arunachalam, Ph.D., from the Indian Institute of Technology Madras, Chennai, where he explained the role of virtual models and real-time data integration in smart manufacturing systems. The final session on "Automation Tools" was handled by Shri. Thangadurai Muthusamy, Project Architect, Red Hat Automation for Cloud, Bangalore, who discussed modern automation frameworks and cloud-based industrial solutions.

The workshop provided students with valuable exposure to Industry 4.0 technologies, bridging the gap between academic learning and industrial practice. Conducted as a special event in honour of our Chairperson Madam's 80th Birthday, the programme served as a meaningful academic celebration, inspiring students to embrace innovation and digital transformation in engineering.



Resource Person	Title	Time
Dr. S. Guru Prasad, Ph.D. Industry Expert - ML	Foundations of Machine Learning	10:00 AM to 11:15 AM
Dr. S. Anand Kumar, Ph.D. IIT - Jammu	Digital Manufacturing with 3D Printing	11:30 AM to 01:00 PM
Dr. N. Arunachalam, Ph.D. IIT Madras	Digital Twin	2:00 PM to 3:00 PM
Shri. Thangadurai Muthusamy Principal Architect, Redhat Automation for Cloud, Bangalore	Automation Tools	3:15 PM to 4:15 PM

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Core Lecture – IIT-Pals – Technology Speaks on 3D Printing and its Applications

On 22 September 2022, the Final Year Mechanical Engineering students attended a Core Lecture organized under the IIT-PALS – Technology Speaks initiative on the topic “3D Printing and Its Applications.”

The session was delivered by Padarathi Padmaja, Chief Executive Officer of Next Generation 3D Printer Private Limited, Chennai. She provided an in-depth overview of additive manufacturing technologies, explaining various 3D printing processes, materials used, and design considerations. The speaker highlighted practical applications of 3D printing in industries such as automotive, aerospace, healthcare, and product prototyping. She also discussed the advantages of rapid prototyping, customization, cost efficiency, and reduced material wastage.

The lecture offered valuable industry insights and real-time examples, enabling students to understand the growing significance of additive manufacturing in modern engineering practice. The interactive session encouraged students to explore innovation, entrepreneurship, and research opportunities in the field of 3D printing.

The department expresses its sincere appreciation to Padarathi Padmaja and IIT-PALS for organizing this informative and industry-oriented session for the benefit of the students.



Core Lecture – IIT-Pals – T2P Lecture on Pathways from the Engineering to Product Development and Entrepreneurship

On 03 November 2022, the Mechanical Engineering students attended an IIT-PALS Talk under the T2P (Theory to Practice) Lecture Series on the topic “Pathway from Engineering to Product Development and Entrepreneurship.”

The session focused on guiding students through the journey from core engineering concepts to successful product realization and entrepreneurial ventures. The speaker emphasized the importance of identifying real-world problems, applying design thinking principles, developing prototypes, validating ideas through market research, and understanding the fundamentals of product lifecycle management. Key aspects such as innovation strategy, intellectual property, funding opportunities, startup ecosystem support, and industry collaboration were also discussed.

The lecture provided valuable insights into transforming technical knowledge into viable products and sustainable business models. It motivated students to think beyond conventional career paths and explore entrepreneurship as a promising avenue. The session was highly informative and inspiring, equipping students with a broader perspective on innovation-driven engineering and product development.

Industrial Visit to Madras Motor Race Track, Sriperumbudur

On 03 December 2022, 45 students from the I and II Year Mechanical Engineering batches participated in an Industrial Visit to the Indian Racing League held at the Madras Motor Race Track, Sriperumbudur.

The visit provided students with firsthand exposure to professional motorsport engineering, race car design, vehicle dynamics, aerodynamics, braking systems, and safety mechanisms implemented in high-performance racing vehicles. Students were able to observe race preparations, team coordination, pit operations, and the technological integration involved in competitive racing environments.

The visit offered valuable practical insights into automotive engineering concepts such as engine performance tuning, suspension setup, material selection, and data acquisition systems used in motorsports. It also helped students understand the application of theoretical knowledge in real-time high-speed conditions.

The industrial visit was an enriching experience that enhanced students' technical understanding and sparked interest in automotive design and motorsports engineering.



Students Participation & 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 & Conferences

During the academic year 2022–2023, the students of the Department of Mechanical Engineering actively participated in various workshops, training programmes, exhibitions, certification courses, and social initiatives, demonstrating their strong commitment towards technical excellence and holistic development.

- H. Kaloosh, S. Sri Surya, and Harish Kishore (II Year Mechanical) attended a two-day IIT-PALS FSDP programme on "Multi-Scale Modeling of Various Metal Additive Manufacturing Processes" conducted in online mode on 07 and 08 December 2022. The programme enhanced their understanding of advanced additive manufacturing techniques and computational modeling approaches.
- C Sneha, M. Santhosh, Pradesh, and Harikishore (Final Year Mechanical) participated in the GATE Coaching Program conducted by the Indian Institute of Technology Madras (IITM), Chennai, on 12 August 2022, strengthening their preparation for higher studies and competitive examinations.
- H. Kaloosh (II Year Mechanical) successfully completed an online certification course titled "SOLIDWORKS: Designing Bearings," conducted and certified by LinkedIn Learning on 11 August 2022, gaining proficiency in CAD-based component design.
- Prakash Koundinyan (III Year Mechanical) attended a Hands-on Session on Reverse Engineering at Anna University, MIT Campus, Chennai, from 29 August 2022 to 03 September 2022. The training provided practical exposure to product analysis, measurement techniques, and 3D modeling.

Educational Session

- Final Year Mechanical students M. Santhosh, J. V. Seshan, Astrodivine, K. Karthikeyan, and Tamilselvan participated in the Industrial Exhibition – 10th Edition CII AUTOSERVE Exhibition held at Chennai Trade Centre on 13 November 2022, where they explored recent developments in the automotive service industry.
- II Year Mechanical students visited the Inauguration of the Royal Enfield Training Centre at Hindustan University on 30 November 2022, gaining insights into specialized training in automotive servicing and maintenance.
- Cadet K. Jayaraman and Lance Corporal Prakash Koundinyan actively represented the institution in NCC activities, participating in the CATC cum RDC Selection Camp held at Chennai Institute of Technology (04 August 2022 to 10 August 2022) and at Dhanalakshmi College of Engineering (12 August 2022 to 19 August 2022). Cadet K. Jayaraman also attended the NSS Cadet Camp RDC-TRG-3 at Dhanalakshmi College of Engineering from 27 August 2022 to 03 September 2022. Further, Cadet K. Jayaraman and Lance Corporal Prakash Koundinyan took part in the "Puneet Sagar Abhiyan" beach cleaning event at Marina Beach on 17 September 2022, contributing towards environmental awareness and social responsibility.

These participations reflect the department's emphasis on academic enrichment, industry exposure, competitive preparedness, leadership development, and community service, thereby fostering well-rounded engineering professionals.

Paper Presentation by the Students

The Final Year Mechanical Engineering students actively showcased their research contributions by presenting technical papers at reputed National and International Conferences during the academic year 2022–2023.

- Sujeth Muruganandam, Surya S., and Rishi Tom Manz presented their paper titled "Experimental Study of the Performance, Emission and Combustion Characteristics of Diesel Engine Fuelled by Waste Orange Peel Oil" at the Virtual Conference on Recent Trends in Clean Technologies for Sustainable Environment (CTSE–2022), organized by SSN College of Engineering on 15 September 2022. Their work focused on sustainable alternative fuels and experimental evaluation of engine performance and emission characteristics.
- Ganesh Vaidhyaa, Maria Jose Immanuel, and Elvis Jonathan, along with Thiruvadi Nainar, M. Santhosh, and Rohith (Final Year Mechanical), presented their research papers at the "International Conference on Applications in Computational Engineering and Sciences (IconACES–2022)" held at VIT on 22 October 2022. The conference provided an international platform to discuss advancements in computational and applied engineering research.
- Divya Jyothi D., Jonahsingh Davids J., and Gokulnath V. (Final Year Mechanical) presented their paper titled "Experimental Investigation on Mechanical Properties of MIG Welded Copper B370 and Stainless Steel 304" at ICMMS 2022, held on 15th and 16th September 2022. Their study examined the mechanical characteristics and weld quality of dissimilar metal joints.
- Omar Shareef M., Rudy Joe Allan A., and Rhythik Kumar S. (Final Year Mechanical) presented their paper titled "Experimental Investigation of Wire Electrical Discharge Machining on Nimonic 81 Super Alloy" at ICMMS 2022 on 15th and 16th September 2022. Their research focused on machining parameters and performance optimization of advanced superalloys.

These presentations reflect the department's strong emphasis on research, innovation, and academic excellence. The active participation of students in prestigious conferences has significantly enhanced their technical knowledge, research exposure, and professional confidence.

Value Added Programme – Two Days Workshop on “Electric and Autonomous Cars”, by Goodwin Motors, Chennai

The Department of Mechanical Engineering organized a Two-Day Value Added Programme on "Electric and Autonomous Cars" for the II Year Mechanical Engineering students on 17th and 18th August 2022.

The workshop was conducted by Xavier Jaganathan, CEO of Goodwin Motors, Chennai. The programme provided comprehensive insights into the fundamentals of electric vehicle (EV) technology, battery management systems, electric powertrains, motor controllers & charging infrastructure. The resource person also introduced the concepts of autonomous vehicle technology, including sensors, control systems, artificial intelligence & vehicle communication systems.

Through practical demonstrations and interactive sessions, students gained exposure to the latest advancements in sustainable mobility and intelligent transportation systems. The workshop enhanced their understanding of emerging trends in the automotive industry and highlighted the growing career opportunities in electric and autonomous vehicle domains.

The programme served as an enriching learning experience, bridging the gap between academic concepts and real-world automotive innovations.



Value Added Programme – Two Day Workshop on “Basic Programming and Assembly of Robots”

The Department of Mechanical Engineering organized a Two-Day Value Added Training Programme on “Basic Programming and Assembly of Robots” for the II Year Mechanical Engineering students on 17 September 2022 and 24 September 2022 (Two Saturdays). The programme was conducted by the Department of Mechatronics Engineering.

The training focused on introducing students to the fundamentals of robotics, including basic robot components, types of robotic systems, actuators, sensors, and control mechanisms. Students were provided hands-on exposure to robot assembly, wiring, and basic programming concepts required to operate and control robotic systems. The sessions emphasized practical learning, enabling students to understand the integration of mechanical systems with electronics and programming.

Through interactive demonstrations and guided practice, students gained valuable insights into automation and robotic applications in modern industries. The programme significantly enhanced their technical skills and interdisciplinary knowledge, preparing them for emerging opportunities in robotics and industrial automation.

The department appreciates the support of the Department of Mechatronics Engineering in successfully conducting this skill-oriented training programme.



Educational Session

Value Added Programme – Design Now Workshop with Fusion 360

The "Design Now Workshop", a Value Added Programme on Autodesk Fusion 360, was organized by ICT Academy and powered by Autodesk. The programme was conducted over two days — 24 September 2022, 26 October 2022 during the period between July 2022 and December 2022, and was delivered by certified Autodesk trainers, Mr. Sheriff and Ms. Kothai.

A total of 106 students from Aeronautical, Aerospace, Automobile, Mechanical, and Mechatronics Engineering participated in the workshop. The sessions focused on hands-on training using Autodesk Fusion 360, covering 3D parametric modeling, assembly design, basic simulation, generative design, and manufacturing workflows.

The programme enhanced students' practical skills in digital product development and modern manufacturing practices. It provided valuable exposure to industry-relevant design methodologies and strengthened their readiness for academic projects, internships, and professional careers. The workshop successfully bridged the gap between theoretical learning and real-world engineering applications.



Students Achievement

Funded Project from External Agency

The Department of Mechanical Engineering is proud to announce that a student project was sanctioned for funding during the academic year 2022–2023.

Mr. R. Harish, Final Year Mechanical Engineering, received financial support of ₹7,500 from Tamil Nadu State Council for Science and Technology (TNSCST) in July 2022 for his project titled "Design and Development of Evay Cart." The project was carried out under the guidance of Dr. M. Vignesh Kumar, Assistant Professor, Department of Mechanical Engineering.

The project focuses on the design and development of an innovative cart system aimed at improving functionality, efficiency, and user convenience. Through this initiative, the student gained valuable experience in product design, analysis, and prototype development, aligning academic learning with practical implementation.

The department congratulates Mr. R. Harish and Dr. M. Vignesh Kumar for this achievement and appreciates their efforts in securing external funding support, thereby promoting research and innovation among students.

ISNEE Motorsports GKDC Go Kart Design Challenge

The students of Mechanical and Automobile Engineering proudly represented the institution in the ISNEE Motorsports GKDC – Go Kart Design Challenge held at Bangalore from 18 August 2022 to 24 August 2022.

The INFERNO Racing Kart Team of KCG College of Technology participated in the prestigious ISNEE Go Kart Design Competition, where 28 teams from across India competed. Demonstrating exceptional design, fabrication, and technical performance, the team secured All India Rank 5 and achieved the remarkable distinction of Tamil Nadu Rank 1.

The multidisciplinary team comprised students from Mechanical, Automobile, Mechatronics, EEE, and Artificial Intelligence departments, showcasing strong collaboration and technical excellence. The team was mentored by Dr. M. Vignesh Kumar, Department of Mechanical Engineering, whose guidance played a pivotal role in the team's success.

This outstanding achievement reflects the students' innovation, teamwork, and engineering capabilities in motorsports design and development. The department extends its heartfelt congratulations to the INFERNO Racing Kart Team and their mentor for bringing laurels to the institution through this prestigious accomplishment.



ISNEE Motorsports GKDC Go Kart Design Challenge II



The students of Mechanical and Automobile Engineering proudly represented the institution in the ISNEE Motorsports GKDC – Go Kart Design Challenge held at Bangalore from 18 August 2022 to 24 August 2022.

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Students Achievement

The students of the Department of Mechanical Engineering actively participated in co-curricular and sports events, bringing laurels to the institution.

- Mr. Prakash Koundinyan G and Mr. Mukesh Kanna (III Year Mechanical Engineering) secured Third Place in the event "Dumb Charades" at the Intercollegiate Cultural Fest Ethereal 2022, held at KCG College of Technology on 14th and 15th October 2022. Their enthusiastic participation and teamwork reflected their creative thinking and stage presence.
- In sports achievements, Mr. Logesh (II Year Mechanical Engineering) secured Third Place in the Javelin Throw event at the Anna University Zonal Athletic Championship conducted at Anna University on 06 December 2022. His accomplishment highlights the department's encouragement of physical fitness and competitive sports alongside academic excellence.

The department congratulates all the students for their commendable achievements and for representing the institution with pride in both cultural and athletic arenas.

Faculty Participation & 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 & Conferences

During the period from July 2022 to December 2022, the faculty members of the Department of Mechanical Engineering actively participated in various seminars, workshops, Faculty Development Programmes (FDPs), conferences, industrial visits, and orientation programmes, reflecting their commitment to continuous professional development and academic excellence.

- Dr. M. Vignesh Kumar participated in the IIC Regional Meet – Southern Section at Sathyabama University (21 July 2022) and attended multiple IIT-PALS webinars on "Lab to Market Activity" and Proposal Writing (November–December 2022). He also took part in the TNSCST – Vigyan Utsav programme on Intellectual Property Rights (04 August 2022).
- Dr. M. Vignesh Kumar, Dr. D Easu and Mr. S Jesudass Thomas were the faculty members present at the Inauguration of the Royal Enfield Training Centre at HITS (30 November 2022).
- Dr. M. Kannan attended a Five-Day Online FDP on "Recent Advancement in Heat Transfer of Manufacturing Processes" (25–29 July 2022) and an Online Sensitization Programme on SERB – SURE Scheme and Proposal Preparation organized by Annamalai University (27 August 2022).
- Dr. M. Vignesh Kumar, Dr. T. Raja, Mr. I. Manikandan, and Mr. K. Gobivel participated in a Three-Day MATLAB Workshop on "Electrical Vehicle Modeling and Analysis using MATLAB" conducted at KCG College of Technology in association with MathWorks (26–28 July 2022). Mr. K. Gobivel further attended seminars and webinars on MATLAB Customized Course, Autonomous Robotics, Electric Vehicles and e-Mobility (Coursera – Naan Mudhalvan Scheme), and a Train the Trainer FDP on Machine Learning at Infosys (October 2022).
- Dr. D. Easu participated in a Project Proposal Meeting addressed by Dr. K. Balaraman, Director General, NIWE (16 August 2022).
- Dr. D Easu attended an Industrial Visit to Ashok Leyland – Hosur Plant under IIT-PALS (09 November 2022).
- Mr. M. Arul Inigo Raja attended a Two-Day FDP on "Fusion 360" under the Naan Muthalvan TNSDC Scheme (19–20 September 2022).
- Mr. I. Manikandan attended a Two-Day FDP on "Industry 4.0" at TANSAM, Chennai (19–20 September 2022) and participated in the IIT-PALS FSDP on Multi-Scale Modeling of Metal Additive Manufacturing Processes (07–08 December 2022).
- Dr. V. Gopal, Mr. M. Arul Inigo Raja, and Mr. S. Jesudass Thomas participated in Marathon'22 organized on World Suicide Prevention Day at KCG College of Technology (10 September 2022). Dr. V. Gopal also attended the NSS One-Day Orientation Programme at Anna University (11 October 2022).



- Dr. S. Gopinath presented a paper at the International Conference on Sustainable Technologies & Advances in Automation, Aerospace & Robotics (STAAAR 2022) held at VIT Bhopal on 16–17 December 2022.
- Mr. S Jesudass Thomas organized an Awareness Programme on “Substance Abuse”, presented by Ms. Revathi, Students Counselor on 29/09/2022 for all the Mechanical Engineering Students.

Overall, the faculty's active involvement in academic, research, industry-oriented, and social initiatives during this period has significantly strengthened their subject expertise, research capabilities, and industry interaction, thereby enhancing the quality of teaching and learning within the department.

Faculty Participation in Faculty Development Programme

During the period from July 2022 to December 2022, the faculty members of the Department of Mechanical Engineering actively participated in various Faculty Development Programmes (FDPs), Professional Development Programmes (PDPs), and technical workshops to enhance their academic and research competencies.

- Dr. S. Gopinath successfully completed NPTEL–SWAYAM FDP – an 4-week programme on “Selection of Nanomaterials for Energy Harvesting and Storage Applications” offered by IIT Roorkee under Prof. Kaushik Pal (from 25 July 2022).
- Dr. S. Gopinath successfully completed NPTEL–SWAYAM FDP - an 8-week FDP on “Robotics” offered by IIT Kharagpur under Prof. D.K. Prathir, (from 25 July 2022).
- Dr. S. Gopinath successfully completed NPTEL–SWAYAM FDP – an 12-week FDP on “Aircraft Propulsion” offered by IIT Guwahati under Prof. Vinay Kulkarni, (from 25 July 2022).
- Dr. S Gopinath also participated in an FDP/PDP on “Trends in Mechatronics & Manufacturing” conducted by the National Institute of Technical Teachers Training and Research (NITTTR), Chennai, under the guidance of Dr. S. Somasundaram for five days from 14 November 2022.
- Dr. M. Kannan attended a Five-Day Online FDP on “Recent Advancement in Heat Transfer of Manufacturing Processes” from 25 July 2022 to 29 July 2022.
- Dr. V. Gopal attended a Six-Day FDP on “Futuristic Research in Mechanical Engineering” organized by SRM Institute of Science and Technology, Ramapuram Campus, Chennai, from 08 August to 13 August 2022.

These FDPs and training programmes significantly enriched the faculty's knowledge in emerging areas such as nanomaterials, robotics, aircraft propulsion, mechatronics, electric vehicle modeling, Industry 4.0, additive manufacturing, and product development. The department appreciates the proactive efforts of the faculty in upgrading their skills and contributing to quality technical education.

Faculty Contributions as Resource Person

During the period from July 2022 to December 2022, the faculty members of the Department of Mechanical Engineering actively contributed to academic enrichment by serving as Resource Persons in various institutions.

- Dr. S. Gopinath, Assistant Professor (S.G), delivered a Guest Lecture on "Art of Writing Research Paper" at SRM Easwari Engineering College on 16 November 2022.
- Dr. S. Gopinath also presented a Guest Lecture on "Product Design and Development" at RMK College of Engineering and Technology on 06 December 2022, sharing his expertise with students and faculty members.
- Dr. M. Kannan, Professor, served as a Resource Person for a Guest Lecture on the topic "Cogeneration and Residual Heat Recovery" during the Six Days Online FDP on "Thermal Engineering – II" conducted by University College of Engineering, Villupuram, on 23 July 2022.
- Dr. M. Vignesh Kumar, Assistant Professor (S.G), delivered a Motivational Talk on "Successful Entrepreneur" during the First Year Students' Orientation Programme at KCG College of Technology on 26 November 2022, inspiring young students with insights into entrepreneurship and innovation.

The department appreciates the faculty members for extending their expertise beyond the institution and contributing to knowledge dissemination, academic collaboration, and professional development across institutions.

RESEARCH PUBLICATIONS & FUNDING

Paper Presentations by Faculty in Conferences

During the period from July 2022 to December 2022, the faculty members of the Department of Mechanical Engineering actively contributed to research and scholarly dissemination by presenting technical papers at National and International Conferences.

- Dr. M. Kannan presented his paper titled "Combined Performance Study on Solar Operated E-Vehicle" at the 4th National Conference on Recent Innovations and Advanced Trends in Mechanical Engineering (NCRIATME 2022) held at Aarupadai Veedu Institute of Technology on 30 June 2022.
- Dr. M. Kannan presented a paper titled "Assessment of Contact Parameters of Semi-Elliptical Soft Fingertips for Anthropomorphic Robotic Grippers" at the 2nd International Conference on Technological Advancements in Computational Sciences (ICTACS-2022) at Amity University, Tashkent (10–12 October 2022).
- Dr. M. Kannan presented a paper titled "Experimental Study of the Performance, Emission and Combustion Characteristics of Diesel Engine Fuelled by Waste Orange Peel Oil" at the Conference on Recent Trends in Clean Technologies for Sustainable Environment held at SSN College of Engineering on 15 September 2022.
- Mr. I. Manikandan presented two papers — "Experimental Investigation on Mechanical Properties of MIG Welded Copper B370 and Stainless Steel 304" and "Experimental Investigation of Wire Electrical Discharge Machining on Nimonic 81 Super Alloy" — at the International Conference on Materials and Manufacturing for Sustainable Developments (ICMMS-2022) held at SRM University, Delhi, in October 2022.
- Mr. S. Rajesh Kannan also presented two research papers at ICMMS-2022, SRM University, Delhi, titled "Metallurgical and Mechanical Characterization of TIG Welded Incoloy 800 and Austenitic Stainless Steel 316L" and "Microstructural Characterization and Mechanical Properties of TIG Welded ISO 3183 and ISO 2602 Dissimilar Joints."
- Dr. V. Gopal presented two papers — "Novel Design and Development of Elliptical Flexure Hinges for Compliant Mechanism for Precision in Different Stages" and "Experimental Study of Shot Peening Machine for Smaller Components" — at the Conference on Recent Trends in Clean Technologies for Sustainable Environment, SSN College of Engineering, on 15 September 2022.
- Mr. K. Gobivel presented two papers, "Experimental and Numerical Investigation in the Turning of 42CrMo Alloy Steel" and "Analysis of Machining Parameters on Milling of Ti/B₄C Metal Matrix Composites," at the International Conference on Application in Computational Engineering & Sciences 2022 held at VIT, Chennai Campus, on 22 October 2022.
- Dr. D. Easu presented the paper "Structural Analysis of Windmill with Storage Tank" at the International Conference on Applications in Computational Engineering and Sciences (IconACES – 2022) at VIT on 22 October 2022.
- Dr. S. Gopinath presented his paper titled "Effect of Operating Condition on Permanent Magnet Heating System" at STAAAR 2022 – International Conference held at VIT Bhopal on 16–17 December 2022.

- Dr. M. Vignesh Kumar presented two papers — "Hazard Identification and Risk Assessment in Lubricants Manufacturing Industry" and "Process Factors Optimisation for Friction Stir Process of ZK60 Magnesium Alloy Employing Box Behnken Approach" — at the 8th National Conference on AMSHE 22: Advancements in Mechanical, Environmental, Safety and Health Engineering, held at Knowledge Institute of Technology, Salem, on 13 August 2022.

The active participation of faculty members in reputed conferences reflects the department's strong research orientation and commitment to academic excellence. Their contributions have significantly enhanced the institution's research visibility and strengthened industry-academia engagement.

Research Publications by Faculty in Reputed Journals

The faculty members of the Department have made significant research contributions through publications in reputed National and International journals during the period from July 2022 to December 2022. Their scholarly work reflects the department's strong commitment to research excellence in the areas of materials engineering, manufacturing, thermal engineering, and advanced processing technologies.

- Mr. K. Gobivel published a research article titled "Machinability Studies on the Turning of Magnesium Metal Matrix Composites" in Archives of Metallurgy and Materials (SCI Indexed, Clarivate Analytics IF: 0.767).
- Dr. M. Kannan published a paper on "Performance Study on the CI Engine using LHR and LTC in Combination with Biodiesel Blends" in the Journal of Engineering Research (Scopus Indexed).
- Dr. V. Gopal contributed a paper titled "Influence of nano-TiC Content on the Properties of Al₂O₃ Aluminum Metal Matrix Composites" in Materials Today: Proceedings (Scopus Indexed).
- Dr. M. Vignesh Kumar published his research work on "Process Factors Optimisation for Friction Stir Process of ZK 60 Magnesium Alloy Employing Box Behnken Approach" in Advances in Materials and Processing Technologies (Scopus Indexed).

These publications in SCI and Scopus indexed journals highlight the department's continued efforts in advancing research, innovation, and academic excellence at both national and international levels.

Research Publications by Faculty in Reputed Journals

The faculty members of the Department have demonstrated commendable innovation and research excellence through the publication and filing of patents during the period from July to December 2022. These achievements reflect the department's strong focus on applied research, sustainable technologies, and advanced engineering solutions.

- A patent titled "A Suspension System using Magnetorheological Fluid Damper and Hybrid Magnet to Reduce Road Induced Vibrations" (Application No. 202022105151.8) was published in September 2022. The invention was contributed by Dr. Aby Sam (Director, HITS), Dr. Linu Sam (Associate Professor), Dr. D. Easu (Associate Professor), and Dr. R. Amrutha (Associate Professor). The innovation focuses on enhancing vehicle ride comfort and vibration control using smart materials.
- Dr. M. Kannan filed an Ordinary Patent Application (No. 202241063782) on 14-11-2022 titled "Combined Performance Study on Solar Operated E-Vehicle." The invention emphasizes sustainable mobility solutions by integrating solar energy with electric vehicle technology.
- Dr. V. Gopal published a patent titled "An Assembly with Mechanical Failure Detection of Selectively Laser Melted Components Constructed On-Site and Method Thereof" (Application No. 202341002128 A) in 2022. The invention addresses advanced manufacturing and structural reliability in additively manufactured components.

These patents highlight the department's commitment to innovation, interdisciplinary research, and the development of practical engineering solutions contributing to technological advancement and sustainability.



Faculty Funded Projects – Sanctioned Grants

Dr. M. Arulprakasajothi, Professor, Department of Mechanical Engineering, is the recipient of a SERB-TARE funded research project (2021–2024) titled "Fabrication of Graphene Coated Copper Heat Sink for Electric Vehicle Battery Thermal Management", with a total sanctioned budget of ₹18.48 lakhs. The project is being carried out in collaboration with Dr. Viswanath Balakrishnan, IIT Mandi, focusing on advanced thermal management solutions for electric vehicle batteries. During the academic year 2022–2023, Dr. Arulprakasajothi successfully completed the second year of the project and received a research grant of ₹2.75 lakhs. This achievement reflects his sustained commitment to high-impact research in sustainable energy technologies, and the department congratulates him for securing and effectively executing this prestigious research funding.

Faculty Funded Projects – Applied for Grants

During the period from July to December 2022, the department actively strengthened its research initiatives by submitting a funded project proposal to a national-level funding agency.

Dr. S. Gopinath submitted a research proposal titled "Plastic Wastes to Renewable Energy – A Concurrent Approach to Diesel Generators and Transport Vehicle Fuels" to the State University Research Excellence (SERB-SURE) scheme in September 2022. The proposed project has a total budget outlay of ₹29.06 lakhs with a duration of three years.

The project aims to develop sustainable energy solutions by converting plastic waste into renewable fuel alternatives suitable for diesel generators and transportation applications, thereby addressing both waste management and energy sustainability challenges.

The proposal is currently under evaluation. This initiative reflects the department's continued commitment towards sustainable research, environmental responsibility, and externally funded research growth.

Training to Sanmar Employees (Fresh B.E Graduates) Faculty of Mechanical Engineering

The Department of Mechanical Engineering successfully conducted a 20-day intensive training programme for 27 fresh engineering graduates from the Sanmar Group from 25th July 2022 to 20th August 2022.

The training was delivered by the Mechanical Engineering faculty and covered comprehensive laboratory courses designed to strengthen practical knowledge, technical skills, and industry readiness. The programme focused on core mechanical engineering domains, hands-on laboratory experiments, equipment handling, safety practices, and applied engineering concepts aligned with industrial requirements.

The initiative was fully funded by the Sanmar Group with a training grant of ₹1,62,000. This industry-academia collaboration highlights the department's strong industry engagement and commitment to enhancing employability through structured skill development programmes.



Training to Sanmar Employees (Fresh Diploma Holders) Faculty of Mechanical Engineering

The Department of Mechanical Engineering conducted a 10-day focused training programme for 8 fresh Diploma holders from the Sanmar Group from 5th September 2022 to 17th September 2022.

The programme was delivered by the Mechanical Engineering faculty and covered essential laboratory courses aimed at strengthening practical exposure, technical competency, and hands-on skills in core mechanical engineering areas. The training emphasized equipment handling, laboratory experimentation, safety procedures, and industry-relevant applications to enhance workplace readiness.

The programme was funded by the Sanmar Group with a training support of ₹24,000, reflecting the continued collaboration between the department and industry. This initiative demonstrates the department's commitment to skill development and industry-oriented training for young professionals.



Faculty Achievement – Virtual Lab Deployment of Two Experiments – Metrology Laboratory

Mr. K. Gobivel has successfully developed and deployed two virtual experiments under the Metrology Laboratory in the institute's own computing environment. The experiments were designed and implemented in compliance with the standards and processes prescribed by the Virtual Labs National Coordination initiative of the Ministry of Education.

The virtual experiments were formally certified in July 2022 by NITK Surathkal and IIT PALS, recognizing their quality, technical accuracy, and alignment with national virtual laboratory development guidelines.

This achievement highlights the department's commitment to digital learning innovation, blended laboratory education, and the integration of technology-enabled teaching methodologies to enhance student learning experiences.





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