MAY 2023

DHANALAKSHMI SRINIVASAN ENGINEERING COLLEGE

(Approved by AICTE and Affiliated to Anna University, Chennai, Chennai)

Accredited with 'A' Grade by NAAC

Perambalur – 621212. Tamilnadu

MECH ARENA

NEWSLETTER ISSUE: MAY 2023

DEPARTMENT OF MECHANICAL

Chairman's Message

The newsletter which is being rolled out today marks the launch of an effervescent activity that would enable the Management to bring out to the eyes of the competitive world, the academic achievements of our prestigious institution. Dhanalakshmi Srinivasan engineering College has grown in leaps and bounds, hurtling across barriers along the way. This has been made possible with the collaborative effort of the Management, the Staff and the Students. I congratulate everyone for their commitment.

In this Issue,

Editorial Board

About The Department

- The Department of Mechanical Engineering was started in the year 2005. The Department offers Undergraduate Programme (B.E) in Mechanical Engineering and Postgraduate Programmes (M.E.) in CAD/CAM. The Department of Mechanical Engineering offers an excellent teaching-learning environment with modern state-of-the-art facilities and well-experienced faculty members The Department has an active students technical association It disseminates knowledge through various activities like special lectures/workshops/seminars/conference, competitions, technical quiz by eminent practitioners of the profession. Regular industrial visits/training/Internships to bridge the gap between theoretical and practical knowledge are arranged.
- The Department involves in value added courses and international certification programmes in association with leading training providers in the areas of drafting, modelling, simulation and analysis of engineering systems during semester holidays. The faculty members consistently interact with technical societies, to promote innovation and enrich the knowledge, skill and behaviour of students. The Department encompasses professional associations such as International Association of Engineers (IAEng), Institution of Engineers (IE), Institute of Research Engineers and Doctors (IRED) which provides students a platform to acquire various hard and soft skills.
- The department boasts of well-qualified and committed faculty ably supported by the technical supporting staff. The students have access to state of the art laboratories and workshops, which enable them to face the challenging needs of the industries and research institutions. The students are provided enough opportunities to specialize in the areas of CAD, CAM, ROBOTICS, MECHATRONICS etc. With expertise over a wide range of domain specialization. The Department aims to attain excellence in academic teaching and learning, research and extension activities. The areas of research focus include design, manufacturing, materials and thermal engineering.

VISION

- To develop highly skilled Mechanical Engineers dedicated to serving society.

MISSION

- To develop competency in emerging technologies through knowledge and skill based education
- To provide conducive environment for research and innovation to cater the societal needs
- To inculcate moral and ethical values to become socially responsible engineers

PROGRAM EDUCATIONAL OBJECTIVES

This Course is conducted to achieve the following Programme Educational Objectives (PEOs):

- Academic Excellence Excel as successful engineers or entrepreneurs.
- Leadership Quality Become effective leaders, demonstrating professionalism and a commitment to lifelong learning.

PROGRAM SPECIFIC OUTCOMES

PSO1: Apply fundamental and advanced concepts in mechanical engineering across multiple domains, such as materials, design, manufacturing, and thermal engineering, to effectively design, develop, and implement complex products and systems.

PSO2: Identify, select, and effectively utilize ICT tools commonly employed Mechanical Engineering such as Computer-Aided Design (CAD) software, simulation software, and data analysis tools to create and apply innovative solutions for the betterment of society.

EVENTS ORGANIZED

➢ National Conference on Emerging Trends in Mechanical Engineering

The National Conference on Emerging Trends in Mechanical Engineering (NCON'23) held on April 20, 2023 in Perambalur, Tamilnadu, India. The Conference, which was organized by Department of Mechanical Engineering, Dhanalakshmi Srinivasan Engineering College (Autonomous) has accepted more than 90 abstracts. After an initial review of the submitted abstracts, 60 papers were accepted for presentation at the conference. The topics that are covered in the conference include Lean Manufacturing, Composite Material, Robotics and Automation, Nano Technology, Corrosion Energy, Advance in Automobile Engineering, Renewable Energy Technology, Electric vehicles, Industry 4.0, Computational and Fluid Dynamics, Air Conditioning and Refrigeration, Supply Chain Management.

The chief guest. Dr. Anand Gurupatham, General Manager- Head power train CAE, Renault Nissan Technology and Business Center, inaugurated the conference and delivered the keynote address. He had a brief discussion about the Industry Trends and Automotive Sector like Augmented Reality, AI system, Cyber Technology, Machine Learning, Internet of Things and E-Vehicles with the students and motivated the students to convert their young mind to become an entrepreneur and to do service to the country.

The chief guest with our honourable Ayya

Chief Guest' Address

Lighting of Kuthuvilakku

Honoring the Chief Guest

Chief Guest' Address

Release of Proceedings Hard Copy

➢ Guest lecture on Advancement in friction stir welding dated 15.03.2023

We are delighted to share insights from a recent guest lecture on "Advancement in Friction Stir Welding" that took place at our college. The lecture, delivered by an expert in the field, provided valuable information and updates on the latest developments in friction stir welding (FSW). Here's a summary of the key highlights from the lecture:

Resource Person:

Dr.S.Vigneshwaran,

Associate professor,

SRM Institute of Science & Technology,

Chennai

Key Points Covered:

- Introduction to Friction Stir Welding (FSW): The lecture began with an overview of FSW, highlighting its significance in modern manufacturing processes, particularly in the aerospace, automotive, and marine industries.
- Advancements in FSW Technology: The speaker discussed recent advancements in FSW technology, including improvements in tool design, materials compatibility, process control, and automation. These advancements have led to enhanced weld quality, efficiency, and cost-effectiveness.
- Applications and Benefits: Various applications of FSW were explored, showcasing its versatility in joining dissimilar materials, reducing defects, and achieving high-strength welds. The benefits of FSW, such as reduced distortion, improved mechanical properties, and environmental sustainability, were also emphasized.
- Challenges and Future Trends: The lecture addressed challenges faced in FSW, such as tool wear, process optimization, and scale-up for industrial applications. The speaker discussed ongoing research efforts and future trends in FSW, including hybrid approaches, simulation tools, and integration with digital manufacturing technologies.
- Case Studies and Industry Insights: Real-world case studies and industry insights were shared, illustrating successful implementations of FSW in various projects and highlighting the competitive advantages it offers to manufacturers.
- Conclusion: The guest lecture on "Advancement in Friction Stir Welding" provided attendees with valuable knowledge, industry insights, and networking opportunities. It showcased the continuous innovation and evolution of welding technologies, positioning our college at the forefront of engineering education and industry collaboration.

➢ Product Design Engineer using AUTODESK FUSION

We are excited to showcase the success and achievements of our product design engineering program using Autodesk Fusion. Our students have demonstrated exceptional skills and creativity in leveraging this powerful design software to bring innovative ideas to life. Here's a summary of the program's end report for our newsletter:

Program Overview:

- ➢ The Product Design Engineer using Autodesk Fusion program equips students with the knowledge and skills needed to excel in the field of product design and engineering.
- ➢ Students learn to use Autodesk Fusion, a leading 3D CAD/CAM software, to design, simulate, and manufacture products efficiently and effectively.

Key Highlights:

- Hands-on Learning: The program emphasizes hands-on learning, allowing students to work on real-world design projects and challenges.
- Design Iterations: Students learn the iterative design process, refining their designs based on feedback, testing, and analysis using Fusion's simulation tools.
- Collaborative Work: Collaboration is encouraged through Fusion's cloud-based platform, enabling teams to work seamlessly and share designs across devices.
- Industry-Relevant Skills: Students develop industry-relevant skills in parametric modeling, assembly design, rendering, animation, and 3D printing using Fusion.
- Project Showcases: The program culminates in project showcases where students present their innovative designs, highlighting their problem-solving abilities and creativity.

Seminar on Abrasive Water Jet Machining dated 03.02.2023

- We are pleased to share the insights and outcomes of the seminar on Abrasive Water Jet Machining that took place on 03.02.2023. The seminar brought together experts, researchers, and enthusiasts to delve into the intricacies and advancements of this cutting-edge machining technology. Here's a comprehensive report highlighting the key aspects of the seminar:

Resource Person:

Dr. M.Kanthababu,
Professor,
Manufacturing Engineering,
CEG Campus,
Anna University– Chennai.

- The seminar on Abrasive Water Jet Machining aimed to explore the principles, applications, and advancements in this versatile machining process. Participants gained valuable insights into the capabilities of abrasive water jet technology and its relevance in various industries.

Key Topics Covered:

Introduction to Abrasive Water Jet Machining: The seminar began with an overview of abrasive water jet machining, explaining its principles, components, and operational characteristics.

- Applications and Benefits: Presentations and discussions focused on the wide range of applications of abrasive water jet technology, including cutting, drilling, profiling, and surface

preparation. The benefits of this non-traditional machining method, such as precision, versatility, and environmental sustainability, were highlighted.

- Process Optimization and Best Practices: Experts shared insights into process optimization strategies, best practices, and case studies showcasing successful implementations of abrasive water jet machining in industry.
- Advancements and Future Trends: The seminar also explored recent advancements in abrasive water jet technology, such as enhanced cutting speeds, improved precision, and integration with digital manufacturing systems. Future trends and potential innovations in the field were discussed, reflecting the dynamic nature of this machining technique.
- Interactive Sessions and Q&A: Participants engaged in interactive sessions and a Q&A panel, allowing for knowledge exchange, clarifications, and networking opportunities among industry professionals, researchers, and students.

Key Takeaways:

- Participants gained a deeper understanding of abrasive water jet machining and its applications across various industries, including aerospace, automotive, metal fabrication, and stone cutting.
- Insights into process optimization and best practices provided valuable guidance for enhancing operational efficiency and quality in machining operations.
- The seminar facilitated networking and collaboration opportunities, fostering partnerships and knowledge sharing among industry stakeholders and academia.

FACULTY PUBLICATIONS

Sl. no.	Authors Name	Title	Name of the Journal	Volume /Issue/ pp	Year
1	S.Anbu, P. Kallidoss, K. Elangovan, P. Arunkumar	Comparative studies on thermal performance of spiraled rod inserts in laminar flow with nanofluids	International journal of ambient energy **(Scopus)**	44(1):2214-2228	2023
2	J. Arunprasad, S. Rajkumar, Aklilu Teklemariam, Dawit Tafesse, Mebratu Tufa, A.Bovas Herbert Bejaxhin	Influence of nano additives on performance and emissions characteristics of a diesel engine fueled with watermelon methyl ester	Journal of thermal engineering **(ESCI)**	9 (2) : 395 – 400	2023
3	S Karpagarajan, C Balamurugan, S Vigneshwaran, El-Sayed I Abdel Aziz	Effect of volume fraction on microstructure and wear behaviorof dual-phase brass/w surface composites fabricated via friction stir processing	Sage Publications, Proceedings of The Institution Of Mechanical Engineers, Part L: Journal Of Materials: Design And Applications **(SCIE)**	237(7)	2023
4	S.Anbu, J.Arunprasad, P. Kallidoss, C.Sivakumar	Comparative studies on convective heat transfer behaviour of nan fluids under turbulent flow with inserts	International journal of ambient energy **(Scopus)**	44(1): 892 – 903	2023

Patent Details

Sl. No	Inventor Name	Year of Filing	Title	Reference Number	IP Status	Applied For
1	K.Parameshwaran	27/03/2023	Method and Apparatus for Cleaning a Furnace Burner	202341021771 A	Published	INDIAN PATENT
2	Dr.K.Elangovan Dr.K.Velmurugan Dr. M.Chellappan Dr.S.Anbu Dr.J.Arunprasad	17/06/2023	An Inovative Air Filtration System for Improved Indoor Air Quality			

Faculty Participation in the International Conference

Sl. No	Authors Name	Title	Name of the Conference
1	R.Thiruganasambantham	Performance Analysis of Hybrid Solar Collector Employing Manganese Oxide-Water Based Nano Fluid Coolant	International conference on advanced materials and manufacturing
2	K. Parameshwaran	Performance and Analysis of Pneumatic Lift for Physically Challenged People	Internal Conference on Science, Technology Engineering and Management
3		Comparative experimental investigation of welding characteristics in shielded metal arc welding	Internal Conference on Science, Technology Engineering and Management
4		Investigation on effect of flow rate in exhaust gas recirculation with biodiesel powered CRDI engine	Internal Conference on Scienece, Technology Engineering and Management
5	D r. J. Arunprasad	Retrofitting of reinforced concrete beams using CFRP with various adhesive	Advanced materials and modern manufacturing
6		Experimental study on the mechanical behavior of natural fibers reinforced with epoxy-based hybrid composites	Advanced materials, manufacturing and industrial engineering

Student's Participation

S.No	Name	Event Name	Event Type	Name of the Institution
1	SANJAY P	FUSION 360	SKILL DEVELOPMENT	AUTODESK
2	SANJAI R			
3	RAGUPATHI C			
4	MAHARAJAN S	DRONE TECHNOLOGY'	WORKSHOP	CARE COLLEGE OF ENGINEERING
5	SANJAI R	TECHSET-2K23	SHORT FILM	DHANALAKSHMI SRINIVASAN UNIVERSITY
6	RANJITH M	MEKCHAT23.0'	WORKSHOP	GOVERNMENT COLLEGE OF ENGINEERING,SALEM
7	MANJUNATH G			

8	AJITH KUMAR D			
9	CHATHRIYAN K			
10	AKASH S			
11	MAHARAJAN S			
12	MOHAMMED KAMALUDEEN K			
13	THAMIZHANBAN M			
14	KALAIVANAN M			
15	KANNAN B			
16	CHATHRIYAN K			
17	SANJAY P			K.RAMAKRISHNANCOLLEGE OF TECHNOLOGY
18	THAMIZHANBAN M	DHR-ICMR	WORKSHOP	
19	ARVINDSAI P			KALAIGNARKARUNANIDHI INSTITUTE OF TECHNOLOGY
20	BALAJI S	ICSTEM'23	CONFERENCE	
21	SANJAI R		Paper Presentation	MAHA BARATHI ENGINEERING COLLEGE
22	SANJAI R	ASCENTECH'23	Technical Quiz	
23	SANJAI R	"TECHBIZZARD 2K23"	SYMPOSIUM (Paper Presentation)	MUTHAYAMMAL COLLEGE OF ENGINEERING
24	RANJITH M			
25	SANJAY P	EMPLOYABILITY SKILLS	LIFE SKILL	RUBICON
26	M.BHARATH M			
27	SANJAI R			
28	RANJITH M			
29	MANIKANDAN S			
30	AJAY R			TAGORE INSTITUTE OF ENGINEERING AND TECHNOLOGY
31	ARUN A		SYMPOSIUM (Paper Presentation)	
32	AJITH KUMAR D	TIET SYMPO 2K23		