COGNIZANCE

Issue 1
2024

DEPARTMENT OF MECHANICAL ENGINEERING

(HALF YEARLY NEWSLETTER)

VISION OF THE INSTITUTE

Strive continuously for academic excellence by providing best contemporary, functional education and endeavoring to attain supreme engineering educational excellence, through sincerity of motive and focused efforts.

MISSION OF THE INSTITUTE

To prepare students to succeed in information-directed and technology-driven global economy to become global citizens through effective teaching and learning process with strong practical exposure.

VISION OF THE DEPARTMENT

Our vision is to achieve the transcendence standard quality education in mechanical engineering with sound technical knowledge, practical skills and to develop the technocrats to cater the needs of socio-economical development of the country.

MISSION OF THE DEPARTMENT

M1: Facilitate students to learn technical fundamentals and practical skills.
M2: Provide exposure to interdisciplinary and emerging technologies.
M3: Develop interest in research, innovation and entrepreneurship.

ABOUT THIS ISSUE

Department of Mechanical Engineering, PIEMR is proud to announce the second issue of its periodical newsletter. This newsletter covers recent activities held within the department, research work and projects. It also highlights future events that are planned by the department.

INSIDE THIS ISSUE

NEWSLETTER COMMITTEE

Editor: Prof. Chinmay Saraf
Student Editor: Mr . Abishek Arihwar

CONTACT INFORMATION

Prestige Institute of Engineering, Management and Research
Department of Mechanical Engineering
Prestige Vihar, Scheme No. 74-C, Sector-D, Vijay Nagar, Indore-452010(MP)
Phone: 0731-4013348
Email: info@piemr.edu.in
hod_me@piemr.edu.in

MESSAGE FROM DIRECTOR

Dr. Manojkumar Deshpande
Director
PIEMR, Indore

As we present this mid-year review, it's clear that the dedication and ingenuity within our teams have been pivotal in achieving significant milestones. This newsletter offers insights into our key accomplishments, highlighting the impact of your specialized skills and collaborative spirit. The results outlined here are a direct reflection of your commitment to excellence and your proactive approach to challenges. Looking ahead to the second half, let us continue to foster a culture of innovation and mutual support, driving us towards even greater success and solidifying our position in the industry. Your expertise is highly valued as we navigate the opportunities ahead.

MESSAGE FROM HEAD OF DEPARTMENT

Prof. Lokesh Kumar Boriwal
HOD, Department of Mechanical Engineering
PIEMR, Indore

This half-yearly communication underscores the remarkable progress we've collectively achieved in the first six months. Within these pages, you'll find detailed accounts of our advancements in strategic initiatives and the positive outcomes of your focused efforts. Your adaptability and problem-solving capabilities have been instrumental in navigating the evolving landscape and delivering exceptional results. I extend my sincere appreciation for your hard work and the valuable contributions you bring to our organization daily. As we move forward, let's maintain our momentum, embrace new possibilities, and continue to work together to achieve our ambitious goals for the remainder of the year.

COVER STORY

COBOTS: REDEFINING THE FUTURE OF ENGINEERING

Collaborative robots, or cobots, are transforming the landscape of mechanical engineering by enabling safe and efficient human-robot interaction. Unlike traditional industrial robots that operate in isolation, cobots are designed to work side-by-side with humans, sharing tasks in manufacturing, assembly, and inspection processes.

Cobots are equipped with advanced sensors, vision systems, and safety features that allow them to detect human presence and avoid collisions. This makes them ideal for tasks that require precision, repetition, or assistance in environments where flexibility and safety are essential.

In mechanical engineering, cobots are being used to automate tedious or ergonomically challenging tasks, such as screwdriving, welding, or component assembly. This not only increases productivity but also reduces the risk of injuries among workers. Their adaptability makes them suitable for small and medium-sized enterprises (SMEs), as they can be quickly reprogrammed and deployed across various operations without expensive infrastructure changes.

Cobots also play a significant role in quality control. With machine vision and AI integration, they can inspect components for defects with greater consistency than manual methods. As a result, manufacturers benefit from higher product quality and reduced waste.

The rise of cobots is pushing mechanical engineers to develop hybrid skills that combine mechanical design with robotics, control systems, and programming. Engineers are now involved in designing workspaces, developing custom end-effectors, and optimizing workflows to maximize human-robot collaboration.

Cobots represent a new era in automation—one where machines don't replace humans but enhance their capabilities, leading to smarter, safer, and more efficient workplaces.

ACTIVITIES AND RECENT EVENTS

INDUSTRY VISIT TO SHAKTI PUMPS

Our recent Industry Visit to Shakti Pumps, a prominent manufacturer based in Pithampur, near Indore, offered our team a firsthand look at their advanced manufacturing facilities and sustainable pumping solutions. [1] Participants gained valuable insights into their production processes, quality control measures, and their commitment to renewable energy applications in pumping technology. This visit provided a practical understanding of how a leading Indian manufacturer operates on a large scale and their contribution to the agricultural and industrial sectors. Our team appreciated the opportunity to witness their innovative approach to engineering and their focus on energy efficiency. We extend our gratitude to Shakti Pumps for their hospitality and for sharing their expertise with our team

HAND ON TRAINING PROGRAM ON 3D PRINTING TECHNOLOGY UNDER IGTR

Our recent Industry Visit to the Raja Ramanna Centre for Advanced Technology (RRCAT), a premier research institute in Indore, offered our team a fascinating glimpse into cutting-edge scientific research and technological development. Participants had the unique opportunity to learn about RRCAT's advancements in areas such as lasers, accelerators, and related technologies. The visit included informative sessions and tours of their specialized facilities, providing a deeper understanding of the sophisticated engineering and scientific principles involved. This exposure to high-level research and innovation was incredibly inspiring and broadened our team's perspective on the potential of advanced technology. We extend our sincere appreciation to the scientists and staff at RRCAT for their time and for sharing their groundbreaking work with us.

INDUSTRY VISIT TO RRCAT

SGSITS Indore recently hosted an insightful interaction session as part of TIFAN 2024, featuring experts from industry giants John Deere and the Society of Automotive Engineers (SAE). This session provided a valuable platform for students and faculty to engage directly with seasoned professionals, gaining perspectives on the latest technological advancements and career opportunities in the agricultural and automotive sectors. Experts shared their knowledge on current industry trends, research and development initiatives, and the skills sought after by leading companies. The interactive Q&A session fostered a dynamic exchange of ideas and provided invaluable guidance to aspiring engineers. This event underscores our commitment to bridging the gap between academia and industry, providing our students with crucial real-world insights.