PANIMALAR ENGINEERING COLLEGE

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Approved by All India Council For Technical Education, New Delhi
POONAMALLEE, CHENNAI- 600 123.

DEPARTMENT OF MECHANICAL ENGINEERING

NEWSLETTER–THE TORQUE

.... Ready to be driven

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VISION OF THE DEPARTMENT OF MECHANICAL ENGINEERING

The Department of Mechanical Engineering will be globally recognized as a pioneer for its excellence in teaching and research in the field of Mechanical and allied Engineering disciplines.

MISSION OF THE DEPARTMENT OF MECHANICAL ENGINEERING

M1: To provide world-class education and pioneering research opportunities, enabling students and faculty to contribute meaningfully to society through innovation and excellence.

M2: To advance engineering and science by fostering technological innovation, academic excellence, and strong industry collaborations for impactful research and technology transfer.

M3: To develop skilled, innovative, and entrepreneurial graduates who drive national and global sustainable development.

PROGRAMME EDUCATIONAL OBJECTIVES

PEO 1: Graduates will contribute to the industrial and societal needs as per the recent developments using knowledge acquired through basic engineering education and training.

PEO 2: Graduates will be able to demonstrate technical knowledge and skills in their career with systems perspective, analyze, design, develop, optimize, and implement complex mechanical systems.

PEO 3: Graduates will be able to work in multidisciplinary environment developing complex mechanical systems.

PEO 4: Graduates will work as a team or as an individual with utmost commitment towards the completion of assigned task using apt communication, technical and management skills.

PEO 5: Graduate will recognize the importance of professional development by pursuing higher studies in various specializations.

PROGRAMME OUTCOMES

Engineering Graduates will be able to:

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSOS)

PSO1: Fundamental Domain Knowledge: Design mechanical systems in various fields of machine elements, thermal, manufacturing, industrial and inter disciplinary fields using engineering/technological tools.

PSO2: Usage of software programs: Resolve new challenges in Mechanical Engineering using modern computer tools and software programs.

PSO3: Continual learning and Research: Develop intellectual and technical solution to complex mechanical problems through continual learning and research.

GO KART

The recent go-kart event was an exhilarating experience that showcased the talent and teamwork of our mechanical engineering students. After months of dedicated effort, meticulous planning, and relentless testing, our team emerged victorious, clinching the first prize!

On race day, excitement filled the air as teams prepared their karts. Our students demonstrated exceptional skill and strategy, navigating the track with precision and determination. Their hard work truly paid off as they crossed the finish line ahead of the competition, earning a well-deserved victory. During the award ceremony, the Secretary and Correspondent took the stage to congratulate the winning team. They praised the students for their innovative designs and collaborative spirit, emphasizing how this victory reflects the essence of our engineering community. “Your commitment and teamwork have not only brought home the trophy but have also inspired us all,” they remarked.

The event fostered camaraderie and a sense of achievement among participants, highlighting the practical applications of their studies. As the team celebrated their success, they set a benchmark for future competitions, demonstrating what can be accomplished through hard work and collaboration. This win is just the beginning, and we eagerly anticipate the team’s future endeavors! Congratulations to all!

RUSH HOUR EVENT

The recent Rush Hour event was a thrilling showcase of creativity and engineering prowess, featuring our talented mechanical engineering students. This year, the competition was fierce, with teams presenting innovative solutions to real-world challenges. After an intense day of problem-solving, teamwork, and ingenuity, our students emerged victorious, clinching the first prize!

The event was filled with excitement as participants raced against the clock to demonstrate their projects. Each team presented unique designs and concepts, reflecting their hard work and dedication. Our students’ project stood out for its originality and practical application, impressing both judges and peers alike.Following the announcement of the winners, the Head of Department and faculty members gathered to congratulate the students on their remarkable achievement. “Your commitment to excellence and innovative thinking is truly commendable,” the Head of Department remarked. Faculty members echoed these sentiments, praising the students for their teamwork and perseverance.

This victory not only highlights the capabilities of our mechanical engineering students but also reinforces the supportive environment fostered by our department. As we celebrate this achievement, we look forward to more opportunities for our students to shine and push the boundaries of engineering innovation. Congratulations to the winning team!

INTERNALTIONAL WORKSHOP ON IC ENGINE, ELECTRIC VEHICLE AND HYBRID VEHICLE

The **International Workshop on IC Engine, Electric Vehicle, and Hybrid Vehicle** was a resounding success, held on July 27-28, 2023, and tailored for our second-year mechanical engineering students. Organized by TOP Engineers in collaboration with the Department of Mechanical Engineering, the workshop aimed to provide an in-depth understanding of contemporary automotive technologies. Over the two days, participants engaged in a series of interactive sessions and hands-on activities led by industry experts and renowned speakers. The workshop covered essential topics, including the fundamentals of internal combustion engines, the mechanics of electric vehicles, and the integration of hybrid systems. Students had the opportunity to explore the latest advancements in automotive engineering and discuss the future of sustainable transportation. In addition to technical presentations, the event fostered an environment for collaboration and networking, allowing students to connect with professionals and peers. Practical demonstrations provided valuable insights into the functioning of various vehicle systems, enhancing the learning experience. Feedback from participants highlighted the workshop's engaging format and the wealth of knowledge gained. This initiative not only enriched the academic curriculum but also inspired students to explore career opportunities in the evolving automotive industry. Overall, the workshop was a significant step towards empowering the next generation of engineers.

Energy harvesting

Energy *harvesting is one of the key emerging technologies of the twentyfirst century.*

It refers to the collection of energy from the environment; energy that would otherwise be lost to heat. In order to distinguish from renewable energy sources more generally, energy harvesting can be defined as the collection of local naturally available energy for local use.
Most often it involves small systems with tiny amounts of power, in the range from nanowatts to hundreds of milliwatts.

The main category of applications at these power levels is wireless devices. The applicability of energy harvesting to particular devices depends on the type and amount of the available ambient energy as well as on size limitations.

M. VISHMNU
III YEAR / MECH

“Engineering is the closest thing to magic that exists in the world”