SAKTHI POLYTECHNIC COLLEGE, Sakthinagar

DEPARTMENTOFMECHANICALENGINEERING

Paper Publication:

1. We are pleased to announce the publication of a research paper by **Dr. A. Shyam**, a distinguished faculty member in the Mechanical Engineering Department. His paper, titled **"Path of Carbon Dioxide Capture Technologies: An Overview,"** has been published in the prestigious journal *Next Sustainability*, available on Science Direct.

The paper provides an insightful overview of the current state and future directions of carbon dioxide (CO_2) capture technologies, which are pivotal in addressing climate change and global warming. Dr. Shyam's work delves into various methods of capturing CO_2 emissions from industrial sources, exploring both traditional and innovative technologies that can help reduce the carbon footprint of the energy sector and other industries.

2. We are pleased to announce the publication of a research paper titled **"A Brief Review of Current Advancements in the Proton Exchange Membrane Fuel Cell"** by **Mr. T. Velmurugan** in the *International Journal of Research Publication and Reviews*, **Volume 6, Issue 8, pp. 2900–2903, August 2025**. This publication highlights the department's continued commitment to promoting high-quality research in emerging and sustainable energy technologies.

The paper presents a concise and insightful review of the latest developments in **Proton Exchange Membrane Fuel Cell (PEMFC)** technology, a highly promising alternative energy system for achieving clean and efficient power generation. The review emphasizes advancements in membrane materials, catalyst efficiency, water management techniques, and overall system performance improvements. It also discusses key challenges such as cost optimization, durability enhancement, and scalability, which are crucial for the commercialization of PEM fuel cells.

3. Mr. **P. Kamalesan** has published a research paper titled **"A Brief Review of Current Advancements in the Proton Exchange Membrane Fuel Cell"** in the *International Journal of Research Publication and Reviews*, **Vol. 6, Issue 8, pp. 2900–2903, August 2025**. This publication highlights his active involvement in emerging energy technologies and contributions to sustainable engineering research.

The paper presents a comprehensive review of recent progress in **Proton Exchange Membrane Fuel Cell (PEMFC)** technology, a crucial component in modern clean energy systems. The study examines advancements in membrane materials, catalyst innovations, bipolar plate design, water management techniques, and system integration strategies aimed at improving fuel cell efficiency, durability, and overall performance. It also discusses current challenges related to cost, material degradation, and large-scale commercialization, offering insights into potential research directions.

4. We are pleased to announce Mr. **P. Kamalesan** has published a research paper titled **"A Review on the Mechanical Characteristics of Synthetic Fiber Reinforced Thermoplastic Composites"** in the *International Journal of Research Publication and Reviews*, **Vol. 6, Issue 8, pp. 2437–2440, August 2025**, https://doi.org/10.55248/gengpi.6.0825.3010, This publication highlights his continued contribution to the field of advanced materials and composite technology.

The paper presents a detailed review of the mechanical behavior of **synthetic fiber reinforced thermoplastic composites**, which are increasingly used in automotive, aerospace, marine, and structural applications due to their excellent strength-to-weight ratio, recyclability, and adaptability to modern manufacturing processes. The study examines key mechanical properties such as tensile strength, flexural behavior, impact resistance, fatigue performance, and thermal stability, comparing the influence of different synthetic fibers and thermoplastic matrices.

5. We are pleased to announce **Mr. T. Velmurugan** has published a research paper titled **"A Review on the Mechanical Characteristics of Synthetic Fiber Reinforced Thermoplastic Composites"** in the *International Journal of Research Publication and Reviews*, **Vol. 6, Issue 8, pp. 2437–2440, August 2025**, https://doi.org/10.55248/gengpi.6.0825.3010, This publication highlights his continued contribution to the field of advanced materials and composite technology.

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HoD **Principal**