Science and Engineering Research Board (SERB)

Sponsored

One day Workshop on

Advanced Coating Techniques and Electromagnetic Forming process for Enhancing PEM Fuel Cell Performance

23rd April 2025

Principal Investigator

Dr. C. BALAMURUGAN

Professor / Mechanical Engineering

Organized by

Department of Mechanical Engineering,
Engineering Design Division,
College of Engineering Guindy,
Anna University, Chennai-25.
Web site: www.annauniv.edu

About Anna University

Anna University was established on 4th September, 1978 as a unitary type of university. This University was named after Late Dr.C.N.Annadurai, former Chief Minister of Tamil Nadu. It offers higher education in Engineering, Technology, Architecture and Applied Sciences relevant to the current and projected needs of the society. Besides promoting research and disseminating knowledge gained therefrom, it fosters cooperation between the academic and industrial communities. Recently, Anna University accredited by NAAC in the year 2023 with A++ grade (CGPA 3.54 out of 4). Anna University, Chennai Ranked 1 in "State Public University Category" in NIRF 2024.QS World University Rankings 2025-383rd in the world and 10th among 46 Indian institutions.

About SERB

The Science and Engineering Research Board (SERB) is a statutory body established through an Act of Parliament. Supporting basic research in emerging areas of Science & Engineering are the primary and distinctive mandate of the Board. The Board structure, with both financial and administrative powers vested in the Board, would enable quicker decisions on research issues, greatly improving thereby our responsiveness to the genuine needs of the research scientists and the S&T system.

About the department

The Department of Mechanical Engineering is one of the oldest departments in the College of Engineering Guindy campus and has a long history of about 127 years of service in Mechanical Engineering education. The Department of Mechanical Engineering offers two undergraduate programmes namely B.E (Mechanical Engineering) and B.E (Materials Science and Engineering), six (6) postgraduate programmes and PhD programme. The department has over 60 faculty members with rich experience and with nearly 720 UG students, 180 PG students and 171 research scholars pursuing PhD programmes. QS World University Rankings 2025 by subject 201-250 in the world.

About the program

This workshop is designed to provide in-depth knowledge and hands-on experience in enhancing the performance of Proton Exchange Membrane (PEM) fuel cells through advanced coating methods. The program focuses on utilizing a Chemical Vapor Deposition (CVD) machine to develop high-quality, durable coatings that improve the efficiency, durability, and conductivity of metallic bipolar plates. Participants will gain insights into the fundamentals of CVD, the role of surface coatings in PEM fuel cells, and the latest advancements in flow field optimization. The workshop aims to bridge the gap between theoretical research and practical applications in the field of fuel cell technology.

For Whom

- Expansion of skills in coating technologies and Electromagnetic forming process for engineering college teachers.
- Aim at expanding the knowledge of the participants in enabling them to address the challenges of coating technologies and Electromagnetic forming process

Key Take Away

- Introduction to PEM fuel cell technology and challenges in bipolar plate performance
- Learn about electromagnetic forming techniques used in the manufacturing of PEM fuel cell components.
- Learn about coating Techniques for enhancing corrosion resistance and Interfacial Contact Resistance.
- Enhance skills on recent research trends and future opportunities in fuel cell development.

Topics to be covered

- Introduction to Chemical Vapour deposition Technique.
- Proton Exchange membrane Fuel cells and components
- Challenges in bipolar plate performance in PEM Fuel cells.
- Introduction to Electromagnetic forming
- Hands-on demonstration of the CVD machine for coating applications.

Workshop Methodology

- Theory session of coating technologies, PEM Fuel cell overview and Electromagnetic forming techniques.
- Practical session on Chemical Vapour Deposition Technique.
- Practical session on Electromagnetic forming machine.
- Practical session on Corrosion analysis
- Practical session on PEM fuel cell assembly and operations.

Registration Fee

No Registration Fees. No TA/DA will be provided. Accommodation will not be provided.

How to apply

Limited to 25 participants only. First come, first served basis.
To register, visit
https://docs.google.com/forms/d/e/1FAIpQLSdbrN5XACSQTe3ZM_OwNhBJHQzNQ1mtKSor4hfVlV_hD4J_5g/viewform?usp=sharing

Resource Persons

Eminent speakers from government bodies and Industrial Practitioners

Scheduled Dates

Last date for registration : 07/04/2025
Intimation of selection : 09/04/2025
Confirmation by participant :11/04/2025

How to reach Anna University

To reach Anna University, located at Sardar Patel Road, Guindy, Chennai - 600025, you can take a bus to the "Anna University" stop or a metro to Guindy/Saidapet and then a short auto or bus ride.

Contact Details

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