



## INTERNATIONAL CONFERENCE ON ENGINEERING CHALLENGES IN GLOBAL SUSTAINABLE DEVELOPMENT

#### **JANUARY 30 & 31, 2025**

#### **Objective**

The Committee of the United Nations has arrived at an agenda to achieve global sustainable development by 2030. There are about seventeen sustainable development goals (SDGs) such as (1) no poverty, (2) zero hunger, (3) good health and well-being, (4) quality education, (5) gender equality, (6) clean water and sanitation, (7) affordable and clean energy, (8) decent work and economic growth, (9) industry, innovation, and infrastructure, (10) reduced inequalities, (11) sustainable cities and communities, (12) responsible consumption and production, (13) climate action, (14) life below water, (15) life on land, (16) peace, justice, and strong institutions, and (17) partnerships.

As energy is the key to achieve every other 16 SDGs, it is apt to mention the potential of distributed electricity generation and the engineering challenges in achieving SDG 7 about affordable and clean energy. In distributed electricity generation, a biogas-fired micro-gas turbine (MGT) generator with an output from 5 kW to 500 kW is one of the options. With the concept of the agro-energy complexes, efforts are being made in European countries to integrate biogas production from agricultural farm wastes and electricity generation using MGT. The development of an MGT requires the design and precision manufacturing of tiny radial compressors and turbines that are efficient against tip leakage. To improve thermal efficiency, MGTs are equipped with exhaust gas heat recuperators. To increase the temperature of gas at the entry to the turbine, cooling systems are to be developed. MGTs drive the Permanent Magnet Alternators (PMAs). PMAs generate electricity at a frequency in the range of a few kHz equivalent to the speed from 50000 RPM to 100000 RPM of the MGTs. Using solid-state power electronics, the unsteady electrical power in the range of a few kHz is converted into steady electrical power from 380 V to 480 V and from 40 Hz to 60 Hz grid frequency. High-speed air bearings are necessary to support the rotor. In distributed electricity generation where an MGT is used, air bearings can be a reliable option for extending the service time between overhauls. The major obstacle to the application of air bearings is the phenomenon of a self-excited whirl. During the air-bearing design, research efforts are being made to analyze and evaluate this kind of dynamic instability.

This international conference aims to focus on such engineering challenges for attaining the aforementioned global sustainable development goals of the United Nations. There will be deliberations that address engineering challenges in access to affordable food, clothing, shelter, energy systems, and education, climate change, biodiversity, pollution, jobs and social protection, and digital connectivity.

For more information, please visit https://icecgsd2025.psncet.ac.in





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#### About the Institution

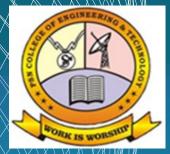
The PSN/Educational and Charitable Trust established the PSN College of Engineering and Technology (PSNCET) in 2001 under the leadership of Dr. PSN/Ambu. The Institute backed by world-class research and development attained autonomous status in 2012 and is affiliated to Arma University, Chennai. This institution has been accredited with an A+ grade by NAAC in the third cycle. The Institute boasts of strong academic-industrial interaction and high-quality research and consultancy. Managed by a professional team for the past 22 years, PSNCET enjoys national repute. The institute has competent qualified faculty and visionary management to enhance the quality of education at all levels and maintain its position in the emerging global scenario.





Dr. P. Suyambu Founder & Chairman PSNCET

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#### **KEYNOTE SPEAKERS**



**Dr. Abdus Samad**Professor, Department of Ocean Engineering, Indian Institute of Technology Madras



Dr. S. A. Sannasiraj
Professor, Department of Ocean Engineering,
Indian Institute of Technology Madras



Dr. Rizalman Bin Mamat Professor, Faculty of Mechanical & Automotive Engineering Technology, Universiti Malaysia Pahang



Dr. Harjit Singh
Professor in Sustainable Energy
Technologies, College of Engineering,
Brunel University, London

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#### INTERNATIONAL CONFERENCE ON ENGINEERING MALLENGES IN GLOBAL SUSTAINABLE DEVELOPMENT **JANUARY 30 & 31, 2025**

#### **Conference Themes**

Research papers from the following heads of themes are invited.

1. Structural Engineering and Environmental Engineering

2. Thermal Sciences and Energy Engineering

- Design/Engineering Marfer als Science and Manufacturing Engineering
- 5. Execution Engineering Control of Execution Engineering

The full-length research articles will be published in the <u>Scopus</u> Indexed Journal "Problems of the Regional Energetics" provided they meet the standards for publication in this journal and pass the editorial board standard verification. Click here for journal website.

#### Time-frame

- Full-length research article submission: Till January 15, 2025
- Early Bird Registration: Till January 15, 2025
- · Late Registration: From January 16, 2025

#### For further information

Dr. Muruganandam Muthanandam Convener - ICECGSD-2025 Associate Professor of Mechanical Engineering PSN College of Engineering and Technology Melathediyoor - 627 152, Tirunelveli District Tamil Nadu, India

Mobile: +91-9384214344

Email: icecgsd2025@psncet.ac.in

For more information, please visit https://icecqsd2025.psncet.ac.in





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#### EDITORS OF CONFERENCE PROCEEDINGS



Dr. Abdus Samad
Professor, Department of Ocean Engineering,
Indian Institute of Technology Madras



Dr. Sabu Thomas
Professor, School of Polymer Science and Technology,
Mahatma Gandhi University, Kottayam, Kerala, India



Dr. Michal Piasecki
Professor and Head of the Theoretical Physics Department,
Faculty of Exact Sciences, Natural Sciences, and Technology,
Institute of Physics, Jan Dlugosz University in Czestochowa,
Poland



Dr. V. Madhusudanan Pillai Professor, Department of Mechanical Engineering, National Institute of Technology Califut, Kerala, India

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