INTERNATIONAL CONFERENCE ON GREEN ENERGY INNOVATIONS FOR SUSTAINABLE DEVELOPMENT (PART OF ICSDG2024) – SDG 7 GOAL AFFORDABLE AND CLEAN ENERGY - ORGANISED BY ELECTRICAL AND ELECTRONIC DEPARTMENT SRMIST & NATIONAL INSTITUTE OF OCEAN TECHNOLOGY (NIOT)

(03th -05th December 2024)

4 ONLINE KEY NOTE SPEAKING SESSION USING RENOWNED RESEARCHERS AND ACADEMICIANS

Key Note Speaker 1 (04th December, 9.30 AM – 10.45 AM):

Dr. Balaraman Kannan is the Executive Director at Idam Infrastructure Advisory Private Limited and has completed his tenure as Director General at the National Institute of Wind Energy (NIWE) under the Ministry of New and Renewable Energy (MNRE), Government of India. With over 30 years of experience in the domains of clean energy, sustainable energy, and power system engineering, Dr. Balaraman is an accomplished expert in clean energy transition and Renewable Energy (RE) integration. He holds a Ph.D. in Electrical Engineering from VTU, Belgaum, and an MBA from the Haas School of Business, University of California.

Topic: "Energy Transition and SDG 7: Impact on the Electricity Grid."

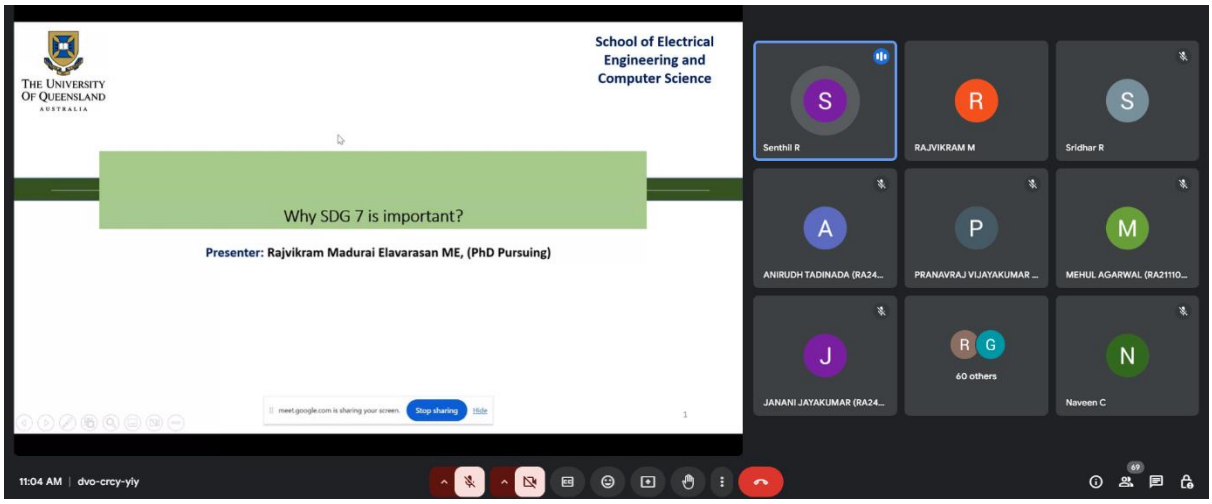
About the session: Dr. Balaraman Kannan emphasized the critical role of SDG 7 (Affordable and Clean Energy) in driving global sustainability by ensuring access to reliable and modern energy for all. He highlighted the energy transition as a shift from fossil fuels to renewable sources like solar, wind, and hydro, driven by the urgent need to mitigate climate change. The discussion detailed past and ongoing transitions in the energy sector, culminating in the current focus on decarbonization and net-zero targets. Key challenges such as energy security, equitable access, and the North-South divide were addressed, underscoring the disparity in priorities between developed and developing nations. Dr. Balaraman also outlined the massive expansion needed in renewable energy capacity and electricity generation to meet 2030 targets. The session concluded with insights into integrating renewable energy into the grid and a vibrant Q&A segment addressing practical solutions and future pathways.

Key Note Speaker 2 (04th December, 11.00 AM – 12.30 PM):

Dr. Rajvikram Madurai Elavarasan is an accomplished researcher and expert in the field of power and energy, holding a prestigious Research Training Program Ph.D. fellowship from the University of Queensland (World QS ranking 40) and a Global Talent Immigration recognition in Australia. With over 9,000 Google Scholar citations and recognition as one of the top 2% most-cited scientists in power and energy, his contributions are globally acclaimed. Dr. Elavarasan's expertise spans renewable energy technologies, energy planning, and policy-making, aligning with global energy transition goals. He has spearheaded high-impact projects, including the pioneering SDG 7 Composite Index, advancing sustainability and decarbonization efforts. His interdisciplinary approach, asset management skills, and stakeholder collaborations make him a leader in achieving energy transition objectives.

Topic: "Why SDG 7 is Important."

About the session: Dr. Rajvikram Madurai Elavarasan elaborated on the significance of the Sustainable Development Goals (SDGs), focusing on SDG 7 (Affordable and Clean Energy) as a cornerstone for advancing global sustainability and decarbonization efforts. He presented the SDG 7 Composite Index, a novel framework that evaluates progress in achieving clean energy goals by integrating multi-criteria decision analysis. Using Australia's renewable energy landscape as a case study, he highlighted the transformative potential of solar energy as a game-changer for sustainable development. Dr. Elavarasan provided actionable insights on aligning clean energy technologies with SDG 7 targets, emphasizing the role of data-driven approaches and policy interventions in enabling a just energy transition. The session concluded with practical recommendations for SDG 7 Composite Index, followed by an engaging Q&A segment that explored innovative solutions and pathways for achieving sustainable energy systems.



Key Note Speaker 3 (04th December, 03.00 PM – 04.30 PM):

Dr. Senthilarasu Sundaram is a distinguished Professor at Teesside University, leading research on sustainable energy materials in the School of Computing, Engineering, and Digital Technologies. With a Ph.D. in organic solar cell materials and over 250 publications, including

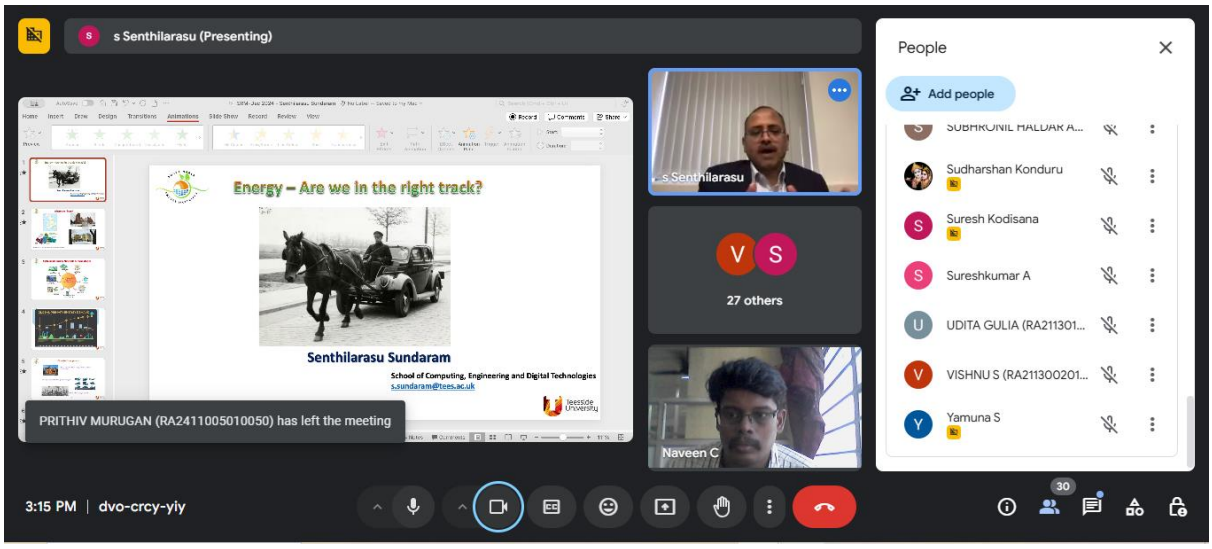
7 books, Dr. Sundaram is a globally recognized expert in renewable energy technologies. His research focuses on solar energy, encompassing thin-film photovoltaics, perovskite solar cells, and environmentally friendly materials for energy applications.

He has spearheaded numerous impactful projects, funded by prestigious organizations like EPSRC and ESRC, addressing energy sustainability, wastewater treatment, and low-carbon heating solutions. Dr. Sundaram's interdisciplinary approach and leadership in sustainable energy technologies contribute significantly to advancing global energy transition and environmental goals.

Topic: "Energy- Are we in the right track"

About the session: Dr. Senthilarasu Sundaram provided a comprehensive overview of the progress and challenges in the energy sector, focusing on advancements in photovoltaic (PV) solar technology. He traced the evolution of PV technology through different generations, highlighting the increasing efficiency and sustainability of thin-film solar technology and its fabrication methods.

Dr. Sundaram also addressed cutting-edge innovations in renewable energy, particularly the role of green hydrogen in the energy transition. He discussed techniques for producing green hydrogen using renewable energy sources and emphasized the importance of cryogenic storage to maintain its viability as a clean energy vector. The presentation concluded with a reflection on current energy trajectories and the need for continued innovation to meet global sustainability goals.



Key Note Speaker 4 (05th December, 09.30 AM – 10.30 AM):

Arvind R. Singh (Senior Member, IEEE) received the master's degree in electrical power systems from the Department of Electrical Engineering, College of Engineering, Pune (Public Deemed University, Under MHRD, Government of India), India, in 2009, and the Ph.D. degree in electrical engineering from the Visvesvaraya National Institute of Technology Nagpur (VNIT) in 2014. He is currently an Associate Professor with the School of Physics and Electronic Engineering, Hanjiang Normal University, Shiyan, China. Prior to his appointment, he was a Lecturer (Contract) with the University of Pretoria, South Africa. He has completed

two post-doctoral research fellowships with Shandong University, Jinan, China, from 2019 to 2021, and the University of Pretoria, South Africa, from 2017 to 2018 and in 2023. He was awarded the Excellence Technical Education Quality Improvement Program (TEQIP) Master's Scholarship by the Ministry of Human Resource and Development (MHRD), Government of India. He was also awarded Indian Government MHRD TEQIP Scholarship for Ph.D. degree. He acquired special First Category Merit-Based Funding from Shandong Provincial Government under the Provincial Post-Doctoral Advance Program in 2019 for his work on the reliable protection scheme for microgrids. He is a Senior Member of the IEEE Industrial Electronics Society, Industry Applications Society, and Power and Energy Society, USA.

Topic: "Energy Management System for SDG"

About the session: Dr. Arvind R. Singh delivered an insightful presentation on energy management systems (EMS) and their critical role in achieving Sustainable Development Goals (SDGs). He outlined various EMS architectures, emphasizing their application in optimizing energy usage, integrating renewable energy, and ensuring grid reliability. Highlighting advanced technologies, he discussed the use of smart grids and IoT-based frameworks to enhance energy efficiency and reduce carbon footprints. Dr. Singh also explored strategies for microgrid protection and resilience, showcasing solutions tailored to both developed and developing regions. e also stressed the role of policy support and international collaboration in advancing energy management technologies. The session concluded with a discussion on future trends, including AI-driven predictive energy management and decentralized energy systems. The session concluded with practical recommendations for aligning EMS innovations with global sustainability goals.

TWO-DAY HOLISTIC TRAINING WORKSHOP IN ENERGY MONITORING AND MANAGEMENT (04th -05th December 2024)

The Department of Electrical and Electronics Engineering, SRM Institute of Science and Technology (SRMIST), organized a workshop titled "Two-Day Holistic Training in Energy Monitoring and Management" for engineers and technical maintenance professionals on 4th and 5th December 2024. The event aimed to enhance participants' knowledge and skills in energy efficiency and sustainable energy practices.

The inauguration ceremony was held on 4th December 2024 at 9:00 a.m. in the Drives Lab, Main Campus, SRMIST, Kattankulathur. Twenty non-teaching faculty members and one external participant attended the workshop.

Day 1 Highlights:

Forenoon Session: Dr. D. Ravichandran and Dr. P. Kanagraj from the EEE Department conducted the session. They provided foundational knowledge on energy efficiency monitoring, measurement, and interpretation of parameters. A demonstration of advanced tools such as basic measuring instruments and power quality analyzers was conducted, equipping participants with practical skills.

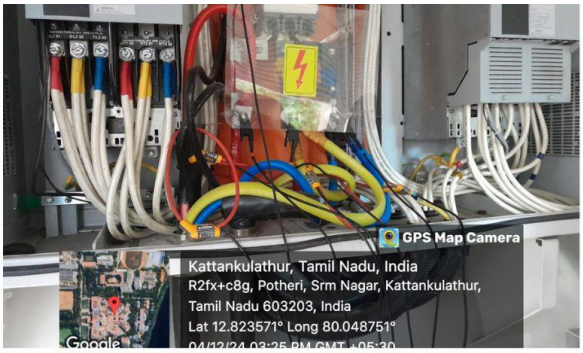
Afternoon Session: A hands-on training program was conducted at the HVAC chiller plant of the SRM Medical Campus. Participants engaged in real-time measurement activities using a Fluke Power Quality Meter, enhancing their understanding of energy monitoring in practical scenarios.

Day 2 Highlights:

Forenoon Session: Mr. S. Stalin, M.Tech in Energy Engineering and a renowned solar PV plant auditor, commenced the session with an overview of rooftop solar PV system configurations installed at SRMIST. He provided insights into the essential practices for maintaining an on-grid rooftop PV system, emphasizing operational and maintenance guidelines.

Afternoon Session: Participants visited the rooftop PV system at SRMIST for an on-site learning experience. Mr. Stalin highlighted the technical gaps in operating and maintaining PV plants and elaborated on best practices for safety and cleaning aspects of solar panels. This practical exposure enabled participants to connect theoretical knowledge with real-world applications.

The workshop successfully imparted comprehensive training in energy monitoring and management, contributing to the professional development of the participants. The interactive sessions and practical demonstrations were highly appreciated, aligning with SRMIST's commitment to fostering energy efficiency and sustainability.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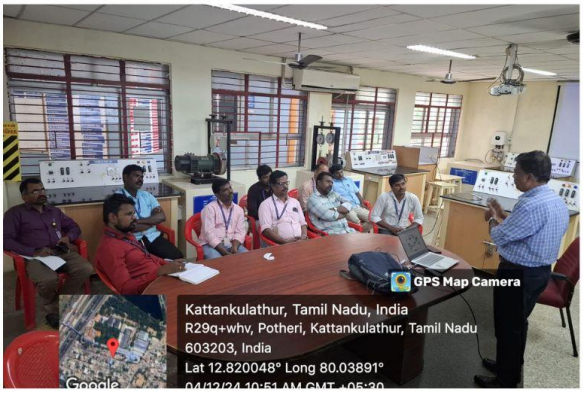
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PAPER / POSTER PRESENTATION

In the International Conference on Green Energy Innovations for Sustainable Development (ICSDG2024), approximately 30 participants, including internal and external undergraduate and postgraduate research scholars, faculty members, and industry professionals, presented their innovative work before an expert panel. The presentations showcased a wide array of research and practical advancements in the fields of renewable energy, sustainability, and energy systems.

After thorough evaluation by the panel, three outstanding presentations were selected as the best among the participants. Certificates of appreciation were awarded to the top presenters, recognizing their exceptional contributions and encouraging their continued efforts toward green energy solutions and sustainable development.