International Conference on Sustainable Energy Technologies and Computational Intelligence (SETCOM 2025) Department of Electrical Engineering, SoET Pandit Deendayal Energy University (PDEU), Gandhinagar, Gujarat, India |

February 21 – 23, 2025



SETCOM 2025 Special Sessions on

Transforming Sustainable Energy through AI, IIoT, and Industrial Connectivity

Aims & Scope of the Session (100-200 words):

This special session explores cutting-edge advancements in sustainable energy technologies driven by the convergence of Industrial Internet of Things (IIoT), AI-powered automation, and advanced communication protocols. It focuses on the transformative role of AI and machine learning (ML) in optimizing energy management and industrial operations, significantly improving efficiency and sustainability. Key topics include the role of protocols such as MQTT, OPC-UA, and 5G in enabling real-time decision-making and resilient distributed control within smart industries. The session will also address the use of AI-optimized cloud computing for predictive analytics and energy optimization, alongside the integration of AI-powered cybersecurity to protect renewable energy grids from emerging threats. Through case studies and discussions, the session aims to provide a comprehensive view of how these technologies are reshaping industrial systems and driving sustainable energy innovation.

Topics of interest include, but are not limited to:

A list of 5-10 relevant areas under proposed theme of special issue

- Digital Twin Technology for Renewable Energy Systems
- Energy Storage Management and Optimization Using AI
- Decentralized Energy Management Using Blockchain
- AI-Enhanced Predictive Analytics for Equipment Failure and Maintenance
- Edge Computing for Real-Time Energy Optimization
- Adaptive Communication Protocols for Energy Networks
- AI-Driven Demand Response in Smart Grids
- Cybersecurity for Renewable Energy Networks

Special Session Organizers (names and contact emails):

(Maximum two members)

- 1. Dr. S.M.A.K. Azad Off email id: <u>dean.es@svce.edu.in</u> personal id: <u>freedom_smak@rediffmail.com</u>
- 2. Dr. S. Salma Off email id: <u>salma.sy@svce.edu.in</u>

