2026 IEEE 5th International Conference on Signal Processing, Informatics, Communication and Energy Systems (IEEE SPICES 2026)

9-11 October 2026
Government College of Engineering Kannur, Kannur, Kerala, India
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Call for Special Session Papers IEEE SPICES 2026

2026 5th IEEE International Conference on Signal Processing, Informatics, Communication and Energy Systems (IEEE SPICES 2026) is a flagship biennial conference of the IEEE Kerala Section, jointly organized by Government College of Engineering Kannur, to be held during 9–11 October 2026. The theme of the conference is "*AI, Smart Energy, and Communication Technologies for Sustainable Development*."

Special Sessions (SS) provide a focused forum for presenting innovative research, emerging trends, and recent breakthroughs in specialized and advanced topics that may not be adequately covered in the regular conference tracks.

Authors are invited to submit original, unpublished research papers formatted according to the conference guidelines and submitted electronically through the submission portal https://www.gcek.ac.in/SPICES2026/ for the special session tracks.

Special Sessions will be conducted in parallel with the regular technical sessions during 9–11 October 2026. All papers submitted under Special Sessions will undergo the same rigorous peer-review process as regular papers. Accepted and presented papers meeting IEEE requirements will be submitted for inclusion in the IEEE Xplore Digital Library (subject to IEEE quality standards). Submission guidelines are available at: https://gcek.ac.in/SPICES2026/paper-submission.php
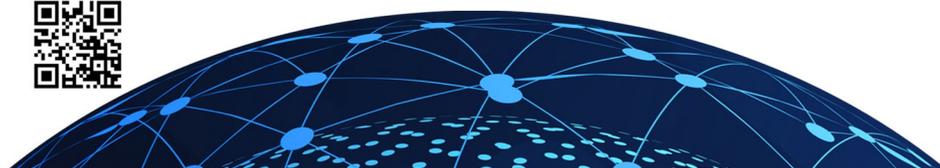
Special Session Track 1

SS1: AI-Driven Fuzzy Modeling and Optimization for Resilient Smart Energy Systems

Organized by

- Dr. Anu Kaushik, Computer Science and Engineering Department, Chandigarh University, India anu.e12329@cuchd.in
- Dr. Shweta Agarwal, Department of Computer Science and Engineering, K.R Mangalam University, India. shweta.agarwal@krmangalam.edu.in
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To handle the uncertainty and changing behavior of smart grids an AI-based fuzzy modeling, intelligent optimization and adaptive decision-making methods are required. Further this integration will help in providing real-time control, coordinating distributed energy resources and improving the stability of the power grid. By bridging AI, energy systems, signal processing, communication networks and intelligent control, this Special Session seeks to offer a targeted technical platform that enhances IEEE SPICES 2026's multidisciplinary vision. The session will showcase developments in fuzzy and hybrid AI techniques for smart grids with renewable integration, such as multi-objective optimization for distributed energy resource coordination, explainable AI for energy decision-making, neuro-fuzzy learning and reinforcement learning-assisted control. Additionally, the emphasis can be placed on various areas such as cyber-physical resilience, secure communication, anomaly detection, predictive maintenance, intelligent route management and intelligent energy

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management for electric or autonomous vehicles, microgrids and smart city infrastructures. To conclude, this integration is gaining popularity in providing support to sustainable development by facilitating intelligent urban energy planning, grid resilience, carbon reduction and efficient resource utilization.

The Special Session focuses on (but is not limited to):

- Artificial Intelligence and Hybrid Intelligent Systems for Smart Grid Modernization
- Advanced Fuzzy and Neuro-Fuzzy Techniques for Renewable Energy Forecasting and Control
- Learning-Driven Intelligent Systems for Adaptive Decision-Making in Complex Environments
- Multi-Objective Optimization for Distributed Energy Resource Coordination and Energy Planning
- Reinforcement Learning-Based Adaptive Control for Self-Healing Smart Grids
- Explainable and Trustworthy AI for Energy System Decision-Making
- Cyber-Physical Resilience and Secure Communication in Smart Energy Networks
- Intelligent Predictive Maintenance and Condition Monitoring in Power Infrastructure
- AI-Driven Energy Management for Microgrids and Distributed Generation Systems
- Intelligent Demand Response and Load Forecasting in Dynamic Power Systems
- Smart Integration of Electric Vehicles and Vehicle-to-Grid Technologies
- AI-Enabled Anomaly Detection and Fault Diagnosis in Smart Grids
- Hybrid AI Approaches for Energy Storage Optimization and Grid Stability
- Sustainable and Carbon-Aware Optimization Strategies for Modern Power Systems
- Intelligent Route and Charging Management for Electric and Autonomous Mobility
- Data-Driven Decision Support Systems for Sustainable Urban Energy Infrastructure
- Large-Scale Machine Learning Architectures for Real-Time Data Analytics and Automation

Important Dates

Special Session Paper Submission Opens: **10 March 2026**
Special Session Paper Submission Deadline: **15 April 2026**
Special Session Paper Acceptance Notification: 15 June 2026
Early-Bird Registration : 15 June 2026 to 15 July 2026
Final Camera-ready Paper : 15 June 2026 to 30 July 2026
Registration Ends : 30 July 2026

Submit your innovative research to the Special Sessions of IEEE SPICES 2026 and be part of a dynamic platform fostering impactful and future-ready technologies.

DIRECTORATE OF TECHNICAL EDUCATION (GOVERNMENT OF KERALA)

IEEE Kerala Section

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