BHUBANESWAR
ICPEE 2025
IEEE Advancing Technology for Humanity
IEEE IEEE Bhubaneswar Section
IAS
Industrial Electronics
IES
PES
KiiT

ICPEE-2025 Program

14th December, 2025 (Sunday)

Venue: Campus 6, KIIT-DU, Bhubaneswar

Time				
8.30hrs	**Registration (Entrance, Seminar Hall,Campus 6, KIIT-DU)**			
9:00hrs	**KIIT & KISS Campus Tour (Starting point- Gandhi Chowk, Campus 6)**			
10:00hrs-11:30hrs	**Tutorial 1**	**Dr. Tapas Roy** (IISC Bangalore)	**Evolution of Multilevel Inverter, Its Challenges, Control and Applications**	**Seminar Hall, Campus- 6, KIIT-DU**
11:30hrs-12:00 hrs	**Tea Break & Poster Session (Venue- Annexure Centre, KIIT Convention Centre, Campus 6, KIIT-DU)**			
12:00hrs-13:30hrs	**Tutorial 2**	**Dr. Nishant Kumar (IIT Jodhpur)**	**AI-based Advanced Control Technique for Grid Integrated Inverters and Digital Twin Approach for Component Health & Performance Monitoring**	**Seminar Hall, Campus- 6, KIIT-DU**
13:30hrs-14:30hrs	**Lunch Break (Venue- Guest House, Campus 6, KIIT-DU)**			
14:30hrs-16:00hrs	**Tutorial 3**	**Dr. Sivaneasan Bala Krishnan (SIT Singapore)**	**Interconnection and Interoperability of Distributed Energy Resources**	**Seminar Hall, Campus- 6, KIIT-DU**
16:00hrs-16:30hrs	**Tea Break & Poster Session (Venue- Annexure Centre, KIIT Convention Centre, Campus 6, KIIT-DU)**			
16:30hrs-18:00hrs	**Tutorial 4**	**Dr. Sivakumar Nadarajan (SIT Singapore)**	**Aerospace electrification and condition monitoring**	**Seminar Hall, Campus- 6, KIIT-DU**
18:00hrs-19:00hrs	**Networking followed by High Tea (Venue- Annexure Centre, KIIT Convention Centre, Campus 6, KIIT-DU)**			

9:00 hrs-17:00 hrs	**IEEE IES R10 Chair Meetup**

BHUBANESWAR ICPEE 2025

IEEE Advancing Technology for Humanity

IEEE Bhubaneswar Section

IAS | Industrial Electronics | IES | PES

KIIT

ICPEE-2025 Program

15th December, 2025 (Monday)

Venue: Campus 6, KIIT-DU, Bhubaneswar

Time			
8.30hrs	Registration (Venue- Banquet Hall, Campus 6, KIIT-DU)		
9:00hrs	KIIT & KISS Campus Tour (Starting point- Gandhi Chowk, Campus 6)		
09:00hrs-10:30hrs	Technical Sessions(1-6)	Conference Hall 1, 2, 3, 4,5 & 6 (Campus 6, KIIT-DU)	
10:30hrs 10:45hrs	Tea Break, (Venue-Kunjaban, Campus 6, KIIT-DU)		
10:45hrs 11:30hrs	Keynote 1	Prof. Ambrish Chandra (Ecole de Technologie Superiere in Montreal, Canada)	Seminar Hall, Campus 6, KIIT-DU
11:30hrs-12:15hrs	Keynote 2	Prof. Hatem Zeineldin (Khalifa University, Abu Dhabi, UAE)	Seminar Hall, Campus 6, KIIT-DU
12:15hrs-12:45hrs	SYP Event		Conference Hall 4 Campus 6, KIIT-DU
12:45hrs-13:15hrs	WIE Event		Conference Hall 4 Campus 6, KIIT-DU
13:15 hrs-14:15 hrs-	Lunch Break (Venue- Banquet Hall, Campus 6, KIIT DU)		
14:15hrs-15:45hrs	Technical Sessions (7-12)	Conference Hall 1,2,3,4,5 & 6 (Campus- 6, KIIT-DU)	
15:45hrs -16:15hrs	Keynote 3	Prof. Milos Manic (President IEEE IES, USA)	Seminar Hall, Campus- 6, KIIT-DU
16:15hrs -16:45hrs	Keynote 4	Mr. Srikanth Chandrasekaran (Country Head & Senior Director – IEEE India.Global Practice Lead, Foundational Technologies, IEEE Standards Association)	Seminar Hall, Campus- 6, KIIT-DU
16:45-17:00	Tea Break, (Venue-Kunjaban, Campus 6, KIIT-DU)		
17.00hrs-18:00hrs	**Inauguration**		Auditorium, Campus-6 KIIT-DU
18.30hrs	Gala Dinner (Lemon Tree Premier, Bhubaneswar)		
9:00 hrs-17:00 hrs	**Industry/Startup Expo**		

ICPEE-2025 Program

16th December, 2025 (Tuesday)

Venue: Campus 6, KIIT-DU, Bhubaneswar

Time			
8.30hrs	Registration (Venue- Banquet Hall, Campus 6, KIIT-DU)		
9:00hrs	KIIT & KISS Campus Tour (Starting point- Gandhi Chowk, Campus 6)		
9:00hrs-10:30hrs	Technical sessions(13-18)	Conference Hall 1,2,3,4,5 & 6, (Campus- 6, KIIT-DU)	
10:30-10:45	Tea Break, (Venue-Kunjaban, Campus 6, KIIT-DU)		
10:45hrs-11:30hrs	Keynote 5	Prof. Sairaj Dhople (University of Minnesota, USA)	Seminar Hall, Campus- 6, KIIT-DU
11: 30hrs-12:15hrs	Keynote 6	Prof. Daswin De Silva (Deputy Chair of the Research and Graduate Studies Committee, Academic Board at La Trobe University)	Seminar Hall, Campus- 6, KIIT-DU
12.15 hrs-13.00 hrs	Keynote 7	Prof.Subhransu Ranjan Samantaray (IIT Bhubaneswar)	Seminar Hall, Campus- 6, KIIT-DU
13:00 hrs-14:00 hrs	Lunch Break (Venue- Banquet Hall, Campus 6, KIIT DU)		
14:00hrs-15:45hrs	Technical Sessions (19- 24)	Conference Hall 1,2,3,4,5 & 6, (Campus- 6, KIIT-DU)	
15:45-16:00	Tea Break, (Venue-Kunjaban, Campus 6, KIIT-DU)		
16:00hrs-16:45hrs	Keynote 8	Prof. Vinod Khadkikar (Khalifa University, Abu Dhabi, UAE)	Seminar Hall, Campus- 6, KIIT-DU
17:00hrs-18:00hrs	Valedictory Function followed by Distribution of Awards (Venue: Seminar Hall, Campus-6, KIIT-DU)		
9:00 hrs-17:00 hrs	Industry/Startup Expo		

ICPEE-2025 Program

17th December, 2025 (Wednesday)

10.00hrs

Sightseeing- Dhauligiri and Konark Sun Temple (Departure from Gandhi Chowk, Campus 6, KIIT-DU)

Technical Sessions Schedule

Poster Sessions

Day 1: Sunday (14th December 2025) 10:30hrs-11:00hrs
Tea Break and Poster Session-1
(Annexure Centre, KIIT Convention Centre, Campus 6, KIIT DU)
Poster Session (1)
Power Electronics Converters: 113, 216, 290, 530, 535
Transportation Electrification and Automotive Technologies: 74, 172, 180, 340, 488, 491
Renewable Energy and Energy Storage Systems: 9, 71, 138, 153, 316, 318, 323, 395, 444, 500
Automation, Control and Digital Systems: 29, 37, 45, 79, 100

Day 1: Sunday (14th December 2025) 16:00hrs-16:30hrs
Tea Break and Poster Session-2
(Annexure Centre, KIIT Convention Centre, Campus 6, KIIT DU)
Poster Session (2)
Power System & Smart Grids: 96, 112, 191, 200, 206, 211, 322, 328, 412, 497, 503, 531
Artificial Intelligence, Machine Learning & Signal Processing for Power & Energy Applications: 47, 92, 98, 152, 210, 326, 408, 455, 490
Electrical Machines and Industrial Drives: 55, 94, 209, 472, 493
Power Quality Issues and Mitigation, FACTS and Custom Power Devices: 137, 222, 315, 327, 440

Oral Sessions

<table>
<tr><td colspan="2">Day 2: Monday (15th December 2025)
09:00hrs-10:30hrs
Technical Sessions (1-6)
(Conference Hall 1, 2, 3, 4, 5 & 6; Campus 6, KIIT DU)</td></tr>
<tr><td>Technical Session & Track</td><td>Paper ID</td></tr>
<tr><td>Technical Session 1
Power Electronic Converters</td><td>73, 118, 119, 202, 235, 295</td></tr>
<tr><td>Technical Session 2
Transportation Electrification and Automotive Technologies</td><td>102, 114, 171, 282, 285, 310, 380</td></tr>
<tr><td>Technical Session 3
Renewable Energy and Energy Storage Systems</td><td>42, 81, 95, 187, 190</td></tr>
<tr><td>Technical Session 4
Artificial Intelligence, Machine Learning & Signal Processing for Power & Energy Applications</td><td>12, 101, 212, 213, 325, 495, 521</td></tr>
<tr><td>Technical Session 5
Automation, Control and Digital Systems</td><td>167, 220, 294, 302, 307, 398</td></tr>
<tr><td>Technical Session 6
Power System and Smart Grids</td><td>8, 59, 76, 214, 217, 226, 337</td></tr>
</table>

<table>
<tr><td colspan="2">Day 2: Monday (15th December 2025)
14:15hrs-15:45hrs
Technical Sessions (7-12)
(Conference Hall 1,2, 3, 4, 5 & 6; Campus 6, KIIT DU)</td></tr>
<tr><td>Technical Session & Track</td><td>Paper ID</td></tr>
<tr><td>Technical Session 7
Power Electronic Converters</td><td>330, 374, 394, 401, 420, 421</td></tr>
<tr><td>Technical Session 8
Power System and Smart Grids</td><td>286, 292, 296, 336, 353, 379, 383</td></tr>
<tr><td>Technical Session 9
Renewable Energy and Energy Storage Systems</td><td>99, 207, 218, 221, 234, 239</td></tr>
<tr><td>Technical Session 10
SS 12: Artificial Intelligence and Machine Learning Applications in Power Electronics and Smart Energy Systems</td><td>215, 219, 397, 409, 413, 415, 423, 431, 436</td></tr>
<tr><td>Technical Session 11
Automation, Control and Digital Systems</td><td>196, 392. 414, 424, 441, 463, 504, 505</td></tr>
</table>

Technical Session 12 **SS 13**: Next-Gen Industrial Electronics: AI, Edge Computing and Intelligent Power Conversion for Sustainable Industries	277, 278, 349, 456, 487, 498, 506

Day 3: Tuesday (16th December 2025) 09:00hrs-10:30hrs Technical Sessions (13-18) (Conference Hall 1,2, 3, 4, 5 & 6; Campus 6, KIIT DU)	
Technical Session & Track	**Paper ID**
Technical Session 13 Power Electronic Converters	437, 448, 452, 519, 522, 532, 533
Technical Session 14 Power System and Smart Grids	238, 312, 410, 419, 439, 454, 484
Technical Session 15 Renewable Energy and Energy Storage Systems	241, 252, 311, 355, 376, 389
Technical Session 16 Semiconductor Devices and Circuits	36, 161, 391, 442, 476
Technical Session 17 **SS 02**: Artificial Intelligence and Optimization Techniques in Power Electronics and Energy Systems	139, 159, 173, 174, 242, 453
Technical Session 18 **SS 05**: Cyber-Physical Systems and Smart Urban Infrastructures for Sustainable Future Cities	182, 198, 259, 264, 265, 369, 435, 524

Day 3: Tuesday (16th December 2025) 14:00hrs-15:45hrs	
Technical Sessions (19-24) (Conference Hall 1,2, 3, 4, 5 & 6; Campus- 6, KIIT-DU)	
Technical Session & Track	**Paper ID**
Technical Session 19 **SS 01:** Resilient and Secure Control Methods for Renewable-Powered Mobility through Vehicle-to-Smart-Grid Integration	354, 468, 478, 479, 483, 494, 517
Technical Session 20 **SS 06:** Design, Modelling and Control of Renewable Energy based EV Charging Infrastructures	192, 193, 233, 248, 291, 308, 309, 502
Technical Session 21 Renewable Energy and Energy Storage Systems	404, 405, 449, 528

Technical Session 22 **SS 11**: Artificial Intelligence Meets Green Innovation: Emerging Sustainable Technologies for Future Electrical Networks	75, 77, 256, 297, 298, 299, 300
Technical Session 23 Transportation Electrification and Automotive Technologies	279, 382, 388, 518
Technical Session 24 **SS 06:** Design, Modelling and Control of Renewable Energy based EV Charging Infrastructures	364, 381, 429, 438, 467, 474, 527, 529

Details of Technical Sessions Schedule

Oral Sessions

<table>
<tr><td colspan="3">Day 2: Monday (15th December 2025)
09:00hrs-10:30hrs</td></tr>
<tr><td colspan="3">Technical Session 1: Power Electronic Converters
<i>(Conference Hall 1, Campus 6, KIIT DU)</i>
Session Chair: Dr. Monalisa Pattnaik, NIT Rourkela
Coordinator: Prof. Ankit Kumar Soni</td></tr>
<tr><td>Paper ID</td><td>Title</td><td>Author</td></tr>
<tr><td>73</td><td>A SRCVE-TCT Voltage Equalizer for Power Recovery in PV Arrays under Partial Shading</td><td>Satpathy, Priya Ranjan; Radha Krishnan, Thurga Roobine; Ramachandaramurthy, Vigna Kumaran; Sharma, Renu</td></tr>
<tr><td>118</td><td>A Switched-Capacitor Based Midpoint-Clamped Multistage Inverter for Sustainable Power Applications</td><td>GANGULY, DIPANWITA; Barai, Ranjit</td></tr>
<tr><td>119</td><td>Design and Implementation of a Three-Phase ANPC SC Multilevel Inverter for High Performance Applications</td><td>GANGULY, DIPANWITA; Barai, Ranjit</td></tr>
<tr><td>202</td><td>FPGA BASED SPWM CONTROL FOR THREE PHASE THREE LEVEL INVERTER</td><td>Buduma, Parusharamulu</td></tr>
<tr><td>235</td><td>A Novel Algorithm for a Three-Phase AC/DC Converter Based on an Extended Kalman Filter to Control DC-Microgrids</td><td>NATARAJAN, RAJASEKAR; Hegde, Achyut; Gupta, Dhruv; A R, Kanimozhi; Zielinski, Dariusz</td></tr>
<tr><td>295</td><td>Multilevel DC Link converter with auxiliary module for level multiplication</td><td>Kesava Pillai, Sreekesh; Das, Subhojit; Maiti, Suman</td></tr>
</table>

Day 2: Monday (15th December 2025) 09:00hrs-10:30hrs		
Technical Session 2: Transportation Electrification and Automotive Technologies *(Conference Hall 2, Campus 6, KIIT DU)* Session Chair: Dr. Farhad Illahi Baksh, NIT Srinagar Coordinator: Dr. Srikanta Mohapatra		
Paper ID	**Title**	**Author**
102	A Tri-Level Grid-Aware Control Framework for Adaptive EV Fast Charging Management	RADHA KRISHNAN, THURGA ROOBINE; Satpathy, Priya Ranjan; Ramachandaramurthy, Vigna Kumaran; Ramasamy, Agileswari; Sharma, Renu
114	A Mixed Integer Programming based Two-Stage Optimization Model for Smart EV Scheduling and Energy Loss Minimization using Soft Open Points	Panda, Subhadarshini; Ganguly, Sanjib
171	Temperature and SOC-Dependent Parameter Estimation for Lithium-Ion Battery Equivalent Circuit Models	Kumar, Purushottam; Kumar, Ranjeet; Ganguly, Sanjib
282	Distributed EV Charging using ADMM with Grid Capacity and Energy Fairness Constraints	Baraha, Satyakam; Mishra, Abhijit
285	Sliding Mode Observer based Co-Estimation of the Voltage and Temperature of Lithium-ion Batteries using an Electro-Thermal Model	Behera, Aditya Kumar; Shaik, Rahimpasha; Guha, Arijit; Gadkar, Nilima
310	Optimization of Electric Bus Depot Operations through Multi-Objective Approach for Cost Minimization and Energy Efficiency	Gorai, Debosmita; dhar, ritabrata; Das, Sourav
380	Analysis, Design, and Control of a Step-up Partial Power Processing Conversion Architecture for Electric Vehicle Fast Charging	Satapathy, Manoranjan; Prajapati, Ashish; Edpuganti, Amarendra

Day 2: Monday (15th December 2025) 09:00hrs-10:30hrs		
Technical Session 3: Renewable Energy and Energy Storage Systems *(Conference Hall 3, Campus 6, KIIT DU)* Session Chair: Dr. Dr. Sivakumar Nadarajan, SIT Singapore Coordinator: Prof. Geetanjali Dei		
Paper ID	**Title**	**Author**
42	LVRT strategy for a DFIG-BESS-GFC based OFF-grid WECS	Rauth, Sheshadri
81	Harnessing the Sun: A Comprehensive Review of Solar Panel Applications in Industrial and Domestic Environments	gudey, satish kumar; Betha, Rajeswari
95	Single Stage Sensorless Induction Motor Drive with Lyapunov-Based Control for Solar PV-Powered Irrigation	Mishra, Anjanee; Pandey, Anand Vardhan

	Pumps	
187	Autonomous Power Flow Management in a PV-Battery-EV Integrated Hybrid Microgrid with Multi-Functional VSC for Grid/Island Operation	Behera, BhanuPratap; Ray, Pravat Kumar; Daramukkala, Pavankumar; Khillo, Aradhana
190	A Linear Mixed Integer Optimization Problem Formulation for Siting, Sizing and Charging Schedule of Battery Energy Storage System in Active Distribution Networks	Saha, Deepjyoti; Gangul, Sanjib

Day 2: Monday (15th December 2025) 09:00hrs-10:30hrs		
Technical Session 4: Artificial Intelligence, Machine Learning & Signal Processing for Power & Energy Applications *(Conference Hall 4, Campus 6, KIIT DU)* Session Chair: Dr. T.C. Manjunath, RRCE Banglore Coordinator: Dr. Lipika Nanda		
Paper ID	Title	Author
12	Novel Lupulella mesomelas schmidti optimization and Cherax algorithm for power loss diminution	Kanagasabai, Dr Lenin
101	Real-Time IoT and Machine Learning Framework for Fault Diagnosis and Monitoring in Solar Power Systems	RAMESH, KONDURI
212	Optimized Random Forest Classifier Using Particle Swarm Optimization for Accurate Fault Detection and Classification in Transmission Systems	Mohanty, Sagarika; Mallick, Ranjan Kumar; Nayak, Pravati; Mishra, Sairam; Kumar Swain, Ajay
213	Islanding Detection of Distributed Generation using Rotation Double Random Forest	Choudhury, Anasuya Roy; Mallick, Ranjan Kumar; Nayak, Pravati; Mishra, Sairam
325	Incipient fault Identification using EMD and Cat Boost classifier in underground distribution cable	Swain, Sarat; Kumar Sahoo, Pravat; Mishra, Sanhita
495	Advanced Fault Detection in AC Microgrid using Artificial Neural Network technique	Pradhan, Dr.Rudranarayan; Nanda, Punyata; Sahoo , Subhashree; Behera, Satyaranjan; Nanda, Devi Prasad
521	Intelligent Fault Detection, Classification, and Localization Using Machine Learning Algorithms for Self-Healing in Smart Grid Protection	N, Praneeth; Patro, P Swati; Srinivas, STP; Dubey, Ojashwini; Roy, Tiasha; Dwivedi, Palak

Day 2: Monday (15th December 2025)
09:00hrs-10:30hrs
Technical Session 5: Automation, Control and Digital Systems
(Conference Hall 5, Campus 6, KIIT DU)
Session Chair: Dr. Subrata Chattopadhyay, NITTTR Kolkata
Coordinator: Dr. Arjyadhara Pradhan

Paper ID	Title	Author
167	Data-driven Control of Discrete-time System with Dynamic Event-triggered Strategy	Yadav, Aastha; Guha, Dipayan; Negi, Richa
220	Fast Output Sampling Based Sliding Mode Controller with Disturbance Observer for Buck Converter	Samantaray, Jagannath; Pradhan, Dr.Rudranaraya; Choudhury, Mukul
294	Backstepping Controller for Robot Manipulator using Actor-Critic Reinforcement Learning	Chaudhary, Seema; Gupta, Vaishnavi; Guha, Dipayan
302	Reference Model Based DTSMC with Disturbance Compensation	Samantaray, Jagannath; Chaudhury, Manoj
307	Li-ion Cell Modelling and Simulation with a Battery Management System for Fault Detection and Management	Singh, Vikram; Gautam, Abhinav
398	Optimal Regulation of Time Delayed System using Enhanced Predictive Control	Vennapusa, Lokesh Kumar Reddy; Kumar, Vineet; Reddy, Sareddy Rakesh; Basha, Kottam Alla; Surendra, Gavvala; Debnath, Manoj Kumar

Day 2: Monday (15th December 2025)
09:00hrs-10:30hrs
Technical Session 6: Power System and Smart Grids
(Conference Hall 6, Campus 6, KIIT DU)
Session Chair: Dr. Sivaneasan Bala Krishnan, SIT Singapore
Coordinator: Dr. Padarbinda Samal

Paper ID	Title	Author
8	THD Based High Impedance Fault Detection in Active Distribution Networks	Bashir, Javeed
59	Adaptive PIλDμD2 Controller for Restructured AGC System	MISHRA, RAM
76	Impact of Communication Delay and Stability Analysis of AC Microgrid	MALLICK, AMIT; PRADHAN, JATIN KUMAR; PRADHAN, ROSY
214	Game-Theoretic based Double Auction Framework for Optimal Allocation of Electric Vehicles and Charging Station Scheduling	Saha, Manoj; Thakur, Siddhartha Sankar; Mukhopadhyay, Sajal; Bhattacharya, Aniruddha
217	Detection of False Data Injection Attacks in the Presence of EV Charging Station and Battery Swapping Station	Dound, Vaibhav; Saha, Manoj; Bhattacharya, Aniruddha; Thakur, Siddhartha Sankar
226	Real-Time Dynamic State Estimation of Rotor Angle and	Kumar, Manish; Prakash, Abhineet;

	Speed in Multimachine Power Systems Using Extended Kalman Filtering	Samantaray, Subhransu Ranjan
337	Coordinated VSG-SMES Control for Enhanced Frequency Stability in Hybrid Power Systems	Suri, Vansh; Sharma, Ravi; Nagpal, Neelu; Kassarwani, Neelam; Deswal, S.S; Panda, Somesubhra

Day 2: Monday (15th December 2025)
14:15hrs-15:45hrs
Technical Session 7: Power Electronic Converters
(Conference Hall 1, Campus 6, KIIT DU)
Session Chair: Dr. Farhad Illahi Baksh, NIT Srinagar
Coordinator: Dr. Subodh Kumar Mohanty

Paper ID	Title	Author
330	Modeling and Performance Analysis of Single Phase PWM Rectifier	Ekka, Akshit Anupam; PATTNAIK, MONALISA
374	41-Level Hybrid Asymmetric Cascaded Multilevel Converter with 4:1 Voltage Ratio	Sahoo, Satyabrata; Sarkar, Indrajit
394	Unified Time and Frequency Domain Power Flow Analysis of Triple Active Bridge DC-DC Converter	N, Sugumar; Chakraborty, Aditya; Sarkar, Indrajit
401	A Compact Common Grounded 9-Level Switched Capacitor Multilevel Inverter for Grid Integration	CHAKRABORTY, RIBHU; Roy, Tapas
420	A Novel Modified Interleaved High-Gain DC–DC Converter Using Asymmetrical Voltage Multiplier and Coupled Inductor With Leakage Energy Recycling	SK, JONI; BHATTACHARYA, AVIK; DAS, SHARMILI
421	A Novel High-Gain DC-DC Converter Using Dual Switch and Coupled Inductor for Renewable Energy Grid Applications	SK, JONI; MISHRA, ANJANI KUMAR; BHATTACHARYA, AVIK; DAS, SHARMILI

Day 2: Monday (15th December 2025)
14:15hrs-15:45hrs
Technical Session 8: Power System and Smart Grids
(Conference Hall 2, Campus 6, KIIT DU)
Session Chair: Dr. P.K. Ray, NIT Rourkela
Coordinator: Dr. Samita Rani Pani

Paper ID	Title	Author
286	A Novel Framework for Intrusion Recognition in Optimal Linear Kalman Filter Based FASE	Kundu, Shubhrajyoti; Dev, Ark; Banerjee, Jaya; Gupta, Saket; Saha Roy, Biman Kumar; Thakur, Siddhartha Sankar
292	Fly Ash as a Green Bulk Backfill Solution for Substations' Earthwork with a Circular Economy Paradigm	Majumdar, Abir Kumar; Kumar, Nishant

296	Enhanced Substations' Earthing System Design Using Multi-Layer Soil Modeling for Reclaimed Ash Ponds	Majumdar, Abir Kumar; Kumar, Nishant
336	Performance Analysis of Two Area Thermal-Hydro Automatic Generation Control using GA Tuned PID and GA-Memetic Tuned PID Controllers	Dash, Ritesh; Krishna, C Jaya; Swain, Sarat chandra; Patel, Ranjeeta
353	Real-Time Mobility-Aware Stochastic Scheduling of Electric Vehicles Charging in Droop-Controlled Islanded Microgrids Considering Uncertainties	dash, pujashree
379	Enhanced Protection Scheme for Coupling Capacitor in Wireless EV Charging Station Under Short Circuit Conditions	ALAM, MD SAJID; Bashir, Javeed; Jena, Premalata
383	Stability-Oriented Allocation of Distributed Generation Units in Microgrids	CHAKRABORT, NIRBAN

Day 2: Monday (15th December 2025) 14:15hrs-15:45hrs		
Technical Session 9: Renewable Energy and Energy Storage Systems *(Conference Hall 3, Campus 6, KIIT DU)* Session Chair: Dr. Subrata Chattopadhyay, NITTTR Kolkata Coordinator: Dr. Subrat Kumar Barik		
Paper ID	**Title**	**Author**
99	A Comparative Techno-Economic Evaluation of Grid-Connected and Off-Grid Renewable EV Charging Systems in Remote Australian Communities	Roy, Tushar Kanti; Mahmud, Md Apel
207	LFC Profile Improvement of an AC Microgrid employing walrus optimized T2-fuzzy Controller under cyber attacks	Sahu, Dr Prakash; Bhatta, siunil Kumar; Swain, Sarat Chandra Swain; Sahoo, Buddhadeva; Samantaray, Subhransu
218	Impact of Soiling and Shading on PV array	NATARAJAN, RAJASEKAR; Pokuri, Siva Krishna; R.K, Venkateswari; K, Priya; C K, Pon Pavithiran; D, Sakthivadivel
221	Entropy coefficient evaluation of Lithium-ion cells of various chemistry	mishra, debasmiti; S, ANANDA; M, Anitha; Kumar T, Sanjay; Kumar, Vikrant; K Peter, Pradeep; M, Neelavathy
234	Optimization of Solar Hybrid Inverter Architectures Using Digital Twin Technology	T S, Vishnu; Raj, Rahul; Seth, Abhishek; K, Udhayadharshini
239	Data-Driven Digital Twin based Health Degradation Assessment of Grid-Tied PV System	Dutt, Keshav; Kumar, Nishant

Day 2: Monday (15th December 2025) 14:15hrs-15:45hrs		
Technical Session 10: SS 12: Artificial Intelligence and Machine Learning Applications in Power Electronics and Smart Energy Systems *(Conference Hall 4, Campus 6, KIIT DU)* Session Chairs: Dr. Surya Prakash, Dr. Mukesh Singh, Dr. Amit Kumar Coordinator: Dr. Satyabrata Sahoo		
Paper ID	**Title**	**Author**
215	Time Domain Fault Detection and Classification in a Smart 9 Bus Power System Using an Optimizable Decision Tree Model	Sen, Abhirup; Atal, Jay Kumar; Rana, Shreya Sonakshi; Dash, Rudra Narayan; Mishra, Swati Smarika; Ravi, Nirnoy Mandal
219	Deep learning-Based Fault Detection and Classification in Multi-Bus Power Systems Using MATLAB Diagnostic Feature Designer and Bidirectional LSTM Networks	Sen, Abhirup; Rana, Shreya Sonakshi; Atal, Jay Kumar; Dash, Rudra Narayan; Mishra, Swati Smarika
397	Hybrid Decomposition-Driven Transformer Framework for Tilt Optimization of Solar Panels under India's Diverse Climatic Zones	Yadav, Amit; Yadav, Vibha; Mahto, Tarkeshwar
409	Novel application of Empirical Mode Decomposition in Deep Learning Models for Prediction of solar radiation	Naresh, Bongoni; Yadav, Amit; Malik, Hasmat
413	A Unified Approach to Modelling of Power System with a New Chaotic Metaheuristic Algorithm	Ganguli, Souvik
415	Design and Simulation of a Three-Phase Grid-Tied Inverter with Integrated Damping Control for Enhanced Power Quality	Goraksha; Prakash, Surya
423	A Unified Framework for Modelling and Control of DC-DC Converter with Swan Mate Algorithm	Ganguli, Souvik
431	Smart DC Net Metering for V2X Systems with Predictive Analytics	Bhat, Ashiq; Singh, Mukesh; Singh, Singara
436	Hybrid Bi-Directional LSTM and Attention-based Convolutional Neural Networks for Energy Consumption Forecasting	Kamboj, Deepika; Singh, Mukesh; Jindal, Neeru; Aery, Mahika; Singh, Namanmeet

	Day 2: Monday (15th December 2025)	
	14:15hrs-15:45hrs	
	Technical Session 11: Automation, Control and Digital Systems *(Conference Hall 5, Campus 6, KIIT DU)* Session Chair: Dr. Dipayan Guha, MNIT Allahabad Coordinator: Prof. Tapaswini Biswal	
Paper ID	**Title**	**Author**
196	Robust Finite-Time Integral Terminal Sliding Mode Control for Suppressing Fault Currents in Bushfire-Prone Compensated Power Distribution Networks	Roy, Tushar Kanti; Mahmud, Md Apel
392	Novel Quantum based advanced Taiga bean geese optimization algorithm for loss diminution and voltage stability enhancement	Kanagasabai, Dr Lenin
414	Design and Implementation of PLC Based Voltage Regulation in DC Generator	Bandyopadhyay, Mandakinee; Chattopadhyay, Subrata
424	Distributed Linear Model Predictive Control in a Multi-agent System with Faults	Singh, Keshav; Swami, Somesh; Nandanwar, Anuj; Dhar, Narendra Kumar
441	Feasibility and Impact Analysis of Goose Falsification Attacks on Generator Protection Relay	Yadav, Ashok
463	THERM-OPEX: A Multi-Dimensional Risk Quantification Model for Thermal Power Plant Outsourcing Using Stochastic Severity Assessment and Dynamic Cost-Performance Indexing	Joshi, Aseemkumar; Kumar, Abhishek
504	A Modified Virtual Droop-Based Control Technique For Voltage Regulation Of A Hybrid Energy Storage System Based DC-Microgrid	Khillo, Aradhana; Ray, Pravat Kumar; Behera, Bhanu Pratap
505	Impact Analysis of IIDGs on Directional Overcurrent Protection with Typhoon-HIL	Yadav, Ashok

	Day 2: Monday (15th December 2025)	
	14:15hrs-15:45hrs	
	Technical Session 12: **SS 13**: Next-Gen Industrial Electronics: AI, Edge Computing and Intelligent Power Conversion for Sustainable Industries *(Conference Hall 6, Campus 6, KIIT DU)* Session Chairs: Dr. Subhendu Sekhar Sahoo, Dr. Basant Kumar Sethi, Dr. Trinadha Burle, Dr. Debayan Sarkar Coordinator: Dr. Suchismita Roy	
Paper ID	**Title**	**Author**
277	Transformer Lifespan Estimation Using Advanced Machine Learning and Condition Monitoring Data	Kalla, Kanaka Raju; Bodda, Ravi Kumar; Sweta, Kappala; Kumari, Badana Kiran;

Paper ID	Title	Author
		Jithendra, Kondeti; Jaddu, Bhargav Kumar; Divakar, Bokam; Malagavelli, Venu; Tarra, Jaganmohan Rao
278	Attention-Based Deep Learning for Voltage Stability in EV-Integrated Grids	Kalla, Kanaka Raju; Tarra, Jaganmohan Rao; Rao, P. Maheswara; Ganga, Ashok; Anem, Jayalaxmi; Y, Prameela; S, Shivani; K, Naveen; prasanth, Sai
349	Innovation Strategies and Commercial Viability of Electric Vehicle Battery Management Systems	Hari Govinda Rao, Ch; Chenniappan, Sharmeela; jyothsna, Attada; Boddepalli, Srinivasarao; Ponnada, Guruvulu Naidu; Madhu Sudhana Rao, Batta
456	Adaptive Fuzzy - Tuned Series Resistor for Fault Ride - Through in DFIG - Based Wind Turbines	Sahoo, Subhendu Sekhar; Chatterjee, Kalyan
487	LF-SA Based Solar Cell Parameter Extraction for Floating Photovoltaic Systems	Kumar V, Abhinav; Goswami, Anik; Sadhu, Pradip Kumar; Bhattacharya, Sagnik
498	Physics-Informed Graph Neural Gaussian Process Model with Hybrid Transfer Learning for Early Prediction of Li-ion Battery Health	Sahoo, Bibhu; Ansari, Md Fahim; Mohapatra, Shubhalaxmi Sahoo, Subhendu Sekhar; Nanda, Choudhury Prasanjit; GARG, ANKIT
506	Operational Analysis of Multi-Carrier Energy Systems Under Uncertainty and Integration of Renewable Energy and Storage	GARG, ANKIT; Ansari, Md Fahim

Day 3: Tuesday (16th December 2025) 09:00hrs-10:30hrs		
Technical Session 13: Power Electronic Converters *(Conference Hall 1, Campus 6, KIIT DU)* Session Chair: Dr. Monalisa Pattnaik, NIT Rourkela Coordinator: Dr. Chitralekha Jena		
Paper ID	Title	Author
437	Switched-Capacitor High Step-Up DC-DC Converters for Renewable Energy Systems: Topologies, Challenges, and Opportunities	Tamta, Ruchi; Kumar, Nishant
448	A Novel Leakage Energy-Assisted Quasi-Z-Source Converter for High Voltage Gain and Soft Switching in Renewable Energy Applications	SK, JONI; BHATTACHARYA, AVIK; DAS, SHARMILI
452	An Innovative Ultra-Gain Two-Winding Coupled Inductor-Based DC-DC Converter for Solar Pumps Powered by Renewable Energy	SK, JONI; BHATTACHARYA, AVIK; DAS, SHARMILI
519	Design and Analysis of Switched Controlled Capacitor Compensation Technique for achieving Constant Power Under Large Misalignment Condition	KUMAR, BIBEK; BHATTACHARYA, AVIK
522	A Novel Multilevel Transformerless Grid Integrated PV	Singh, Amrita; Singh, Atul

	Inverter for Reduced Common-mode Current	
532	SiC based High Gain Boost Converter with MPPT Control for PV-battery Powered DC Microgrid	Biswal, Asish; Pattnaik, Monalisa
533	A Ringing Effect Mitigation Strategy using Double Pulse Test for SiC based DAB Converter	Tiwari, Ashish; Vikash Varma, Katru; Pattnaik, Monalisa

Day 3: Tuesday (16th December 2025)
09:00hrs-10:30hrs

Technical Session 14: Power System and Smart Grids
(Conference Hall 2, Campus 6, KIIT DU)
Session Chair: Dr. Ranjan Kumar Behera, IIT Patna
Coordinator: Dr. Sriparna Roy Ghatak

Paper ID	Title	Author
238	Condition Monitoring of Grid-Integrated PV System Using Data-Driven Digital Twin	Dutt, Keshav; Kumar, Nishant
312	Review and Implementation of Digital Twin for MPPT Techniques in Grid-Connected PV Inverters	Shrivastava, Prateek; Kumar, Nishant
410	A Sliding Mode-based Negative Sequence Compensation for Seamless Interconnection of Microgrids under Unbalanced Condition	Gupta, Amit; Perumalla, Chandrasekhar
419	Breaker Failure Backup Protection Scheme for MTDC Network	Gupta, Praveen; Samantaray, Subhransu
439	Blockchain-enabled AI-agent-based peer-to-peer energy trading and fault management system	Shukla, Devesh; Gulla, Rakesh
454	Secure and Efficient Management of EV Charging in Microgrids Using LSTM Networks	Dash, Ritesh; Swain, Sarat Chandra; Patel, Ranjeeta; Krishna, Jaya; Bharat, Manish
484	An Analysis on Distribution of Power in Parallel Inverters, with Mismatched Feeder Impedance in a Micro grid	Vasamsetti, Venkata

Day 3: Tuesday (16th December 2025)
09:00hrs-10:30hrs

Technical Session 15: Renewable Energy and Energy Storage Systems
(Conference Hall 3, Campus 6, KIIT DU)
Session Chair: Dr. Rudra Narayan Pradhan, OUTR BBSR
Coordinator: Prof. Soubhagya Ranjan Prusty

Paper ID	Title	Author
241	Real-Time Health Monitoring and Parameter Estimation of PV Systems Using a Data-Driven Digital Twin with DropKAN and MDA-EFO	Pandey, Rituvic; Kumar, Nishant
252	Robust Control Strategy for PV-Battery Integrated UPQC in	Das, Satyajit; Kumar, K. M. Sanjeeva; Lenka,

	Electric Vehicle Charging Stations for Power Quality Enhancement	Rajesh Kumar; Patel, Ranjeeta
311	Digital Twin Framework for Voltage Control and Power Quality Optimization in Single-Stage Grid-Connected Solar PV System	Shrivastava, Prateek; Kumar, Nishant
355	Performance of Fast Electric Vehicle Charging Stations by Energy Storage Devices based Grid Connected Hybrid Renewable Energy Sources	Kiran, N.; Vonteddu, Shannmukha Naga Raju; Bathula, Ajay Babu; Burri, Srinivasa Rao; Kansal, Vipashi; Kumar, S. Senthil; Reddy, B. Rajagopal; Bale, Ajay Sudhir; Malla, Siva Ganesh
376	Fossa Optimization Technique based MPPT of PV System under Partial Shading Conditions	Gath, Sandip Prabhakar; Christyjuliet, B.; Kuldip, Kuldip Singh; Rao, S. Nagaraja; Agnihotri, Aditya; D. R, Anita Sofia Liz.; Janapati, Krishna Chaithanya; Bale, Ajay Sudhir; Malla, Siva Ganesh
389	Intelligent Energy Management System of Electric Vehicles using Botox Optimization based Fuzzy Logic Algorithm	Singh, Anand; Verma, Sumit; S, Prashanth G; Veeranna, G.; Mehra, Pramod; Kumar, S. Senthil; Karuppiah, N.; Bale, Ajay Sudhir; Malla, Siva Ganesh

Day 3: Tuesday (16th December 2025)
09:00hrs-10:30hrs
Technical Session 16: Semiconductor Devices and Circuits
(Conference Hall 4, Campus 6, KIIT DU)
Session Chair: Dr. Sanjib Ganguly, IIT Guwahati
Coordinator: Dr. Subhra Debdas

Paper ID	Title	Author
36	Investigating Silicon Carbide (SiC) Degradation Through Monte Carlo Methods in Cobalt Irradiation Environments	Anjankar, Shubham; Balpande, Suresh
161	Performance Modeling of a $MASnI_3$/$CsSnGeI_3$ Bilayer Lead-Free Perovskite Solar Cell Through SCAPS-1D	Rikhitha, Tiruvaipati; Puja Dharani, Padamata; Harshitha, N.V.N.S; Dikshit, Ashutosh Kumar
391	Pulsed Eddy Current and Giant Magnetoresistive Sensor-Based Adaptive Machine Learning Protocols for Reliable Flaw Detection in Aircraft Structures	Das, Tarun; Bera, Chinmay; Belwanshi, Vinod; Sagar, Sarmishtha
442	Performance Optimization of CIGS Thin-Film Solar Cell Through Alternative Active Layer Materials	De Sarkar, Pratik; Das, Ayantik; Mishra, Sneha
476	TLBO based PID Controller for Pediatric Ventricular Assist Devices	Pandey, Sumit; Ganguly, Anindita; D. Cordeiro, Thiago; G. S. Junior, Gutemberg; A. Cestari, Idágene; M.N. Lima, Antonio

Day 3: Tuesday (16th December 2025) 09:00hrs-10:30hrs		
Technical Session 17: SS 02: Artificial Intelligence and Optimization Techniques in Power Electronics and Energy Systems *(Conference Hall 5, Campus 6, KIIT DU)* Session Chairs: Dr. Amit Kumar Yadav, Dr. Tarkeshwar Mahto, Dr. Hasmat Malik Coordinator: Dr. Pradeep Kumar Sahu		
Paper ID	Title	Author
139	Optimum Overcurrent Relay Coordination of Nine Bus Test System using Proper System Fault Current	Patel, Maitry; Godwal, Shanker; Nimje, Akhilesh; Chatterjee, soumesh; Jaiswal, Megha; Mehta, Siddharth
159	Optimization of Live Electrode Design for Desired Field Distribution in GITL using ANN	DASGUPTA, SURYENDU; CHAKI, SUDIPTO; BOSE, AVIJIT; LAHIRI, ABHIJIT
173	A Hybrid AI-ML Framework for Predictive Maintenance and Load Forecasting in Smart Grid Infrastructures	Selvaraj, Vijayanand
174	Challenges and Mitigation Technique in Overcurrent Relay Coordination for Low Voltage Radial Systems	Jaiswal, Megha; Godwal, Shanker; Nimje, Akhilesh; kanojia, sarika; Mehta, Siddharth; Patel, Maitry
242	A Data-Driven Digital Twin Formation with TCN for State Prediction of Grid-Tied PV Systems	Pandey, Rituvic; Kumar, Nishant
453	Efficient Power Curve Modelling and Generation Forecasting for Wind Power Plant	VADLA, LOKESH; Ravi, Ramesh Kumar; Kumar, Vineet; REDDY, BHUMIREDDY POOJITHA; PRADEEP, THUPAKULA; PRASAD, PAINENI REDDY; Debnath, Manoj Kumar

Day 3: Tuesday (16th December 2025) 09:00hrs-10:30hrs		
Technical Session 18: SS 05: Cyber-Physical Systems and Smart Urban Infrastructures for Sustainable Future Cities *(Conference Hall 6, Campus 6, KIIT DU)* Session Chairs: Dr. Markala Karthik, Dr. Venkata Ramana Naik N, Dr. Sachidananda Sen Coordinator: Dr. Rudra Narayan Dash		
Paper ID	Title	Author
182	IOT Enabled Cloud Based Smart Door Locking with Unauthorized Intruder Detection and Protection	Atal, Jay Kumar; Rana, Shreya Sonakshi; Sen, Abhirup; Subhadarshini, Lipsa; Ravi, Nirnoy Mandal
198	Modbus TCP/IP Attack Detection Using Lightweight Active Probing in Smart Grid Environment	bhardwaj, manish

259	Design of Voltage Multiplier DC-DC Circuit for H2 Vehicles with Horse Herd Optimization MPPT Controller	gurijala, Sreedhar; HUSSAIAN BASHA, Dr.; Kumar Shiva, Chandan; S, Resmara; Fathima, Fini
264	A Novel Improvement of Wind Power Supply by Using the RBFN Algorithm	HUSSAIAN BASHA, Dr.; S, Resmara; Venkateswarlu Reddy, S; Fathima, Fini
265	A Novel Improved Adaptive Network-Fuzzy Inference System Approach for Effective Battery Charging Control	S, Resmara; HUSSAIAN BASHA, Dr.; S, Venkateswarlu Reddy; Fathima, Fini
369	Design and Simulative Testing of High-Gain Zeta Converters with an Adaptive P&O Algorithm	HUSSAIAN BASHA, Dr.; S, Resmara; Chakravarthi, Kotakonda; Fathima, Fini
435	Impact of Partial Shading on the Performance of PV Arrays: Six-by-Six Series and Parallel Module Simulation Design and Analysis	Saiprakash, Chidurala; Velpula, Srikanth; Sowjanya, Vadapalli Hepsi
524	Dual Active Bridge DC-DC Converter for EV Applications	Srinivas, Polu; Irfan, Mohammed Mujahid; Shiva, Chandan Kumar; Karthik, Markala

Day 3: Tuesday (16th December 2025)

Day 3: Tuesday (16th December 2025)
14:00hrs-15:45hrs
Technical Session 19:
SS 01: Resilient and Secure Control Methods for Renewable-Powered Mobility through Vehicle-to-Smart-Grid Integration
(Conference Hall 1, Campus 6, KIIT DU)
Session Chairs: Dr. Aditi Chatterjee, Dr. Debani Prasad Mishra, Dr. Omhari Gupta
Coordinator: Dr. Srikanta Mohapatra

Paper ID	Title	Author
354	Security Constrained Unit Commitment of Power Generation Systems	Behera, Dr Rabindra; Biswal, Bidyadhar; Panigrahi, Bibhu Prasad
468	Power Quality Enhancement Using Deep Learning Technique Based Dynamic Voltage Restorer	Mishra, Debani; Das, Soumya Ranjan; Acharya, Devi Prasad; Gupta, Nidan; Pramanik, Rupsa; Sahu, Jayanta Kumar
478	Stage-Wise Power Loss Dissection of Totem-Pole Bridgeless PFC: From Simulation to Real-Time HIL Validation	Thakre, Kishor; Nigam, prateek; Wadhwaan, Prachi
479	Design and Simulation of a Solar-Powered Water Pumping System Using Fuzzy Logic Controlled V/f Induction Motor Drive	Thakre, Kishor; Nigam, prateek; Bee, Nagma
483	Efficient On-Board EV Battery Charger Using LLC Resonant Converter and Totem-Pole PFC	Lenka, Rajesh Kumar*; Mishra, Debani Prasad; Deshmukh, Aditya Dhananjay; Kalyan, Munavath Pavan; Ray, Ishita
494	Modelling Lithium-ion Batteries in Electric Vehicles: Thermal Effects on System Integration and Efficiency	Pradhan, Dr.Rudranarayan; Dash, Abhisek
517	Under Water Image Driven Pollution Monitoring using Unmanned Water Surface Vehicle	Chattopadhyay, Dr. Surajit; Ghosh, Suvajit; Mandal, Sachin; Bhowmik, Bhowmik; Dhaara, Barsha; Mondal, Saumili

Day 3: Tuesday (16th December 2025) 14:00hrs-15:45hrs

Technical Session 20:
SS 06: Design, Modelling and Control of Renewable Energy based EV Charging Infrastructures
(Conference Hall 2, Campus 6, KIIT DU)
Session Chairs: Dr. Ashutosh K Giri, Dr. Sabha Raj Arya, Dr. Sombir Kundu, Dr. Yogendra Arya
Coordinator: Prof. Geetanjali Dei

Paper ID	Title	Author
192	Impact of Solar Integration and Advanced Battery Management Systems on Electric Vehicle Performance and Longevity	TANDEL, ANIKET; Jain, Piyush; Shukla, Darshini
193	Digital Twin Applications in Renewable Energy: A Survey on Structural Types, Modeling Approaches, and Functional Layers	Shrivastava, Prateek; Kumar, Nishant
233	State of Health Estimation of Lithium-Ion Batteries Using the Least Squares Method for Accurate Performance Assessment	Mishra, Smaranika; Swain, Sarat Chandra; Mayaluri, Zefree Lazarus
248	Digital Twin for Health Monitoring of DC-AC Inverters in Renewable Energy Applications: A Comprehensive Review	Shrivastava, Prateek; Kumar, Nishant
291	PV-assisted EV Charging Station with G2V/V2G/V2V Features Utilizing Fuzzy Controller	Das, Subhojit; Pandey, Sanjeev; Maiti, Suman; Peyada, Naba
308	Digital Twin Technology for Lithium-Ion Batteries: A Comprehensive Review of Real-Time Monitoring, and State Estimation	Meena, Kalpana; Kumar, Nishant
309	A Comprehensive Study of Lithium-Ion Battery Modeling, Health Estimation Technique	Meena, Kalpana; Kumar, Nishant
502	A Novel Multilayer Neural Network for Efficient DSM with Battery Energy System	HUSSAIAN BASHA, Dr.*; Chakravarthi, Kotakonda ; R, Likhitha ; E, Prathibha

Day 3: Tuesday (16th December 2025) 14:00hrs-15:45hrs

Technical Session 21: Renewable Energy and Energy Storage Systems
(Conference Hall 3, Campus 6, KIIT DU)
Session Chair: Dr. Pravat Kumar Ray, NIT Rourkela
Coordinator: Prof. Tapaswini Biswal

Paper ID	Title	Author
404	Protection of Distribution Systems with Solar PV using Multi-Agent System with Hilbert–Huang Transform	TALUKDER, PAHELI; GAFOOR SHAIK, ABDUL
405	A New Method for Virtual Inertia Control in Wind Turbines with Doubly-Fed Induction Generators	Geske, Martin; Shaw, Priyabrata

449	Intelligent Energy Management System of Grid Connected Battery Bank with Hippopotamus Optimization	Thottempudi, Pardhu; Vonteddu, Shannmukha Naga Raju; Singh, Kuldip; Indukuri, Swetha Monica; Kotiyal, Arnav; Kumar, S. Senthil; Ravivarman, S.; Bale, Ajay Sudhir; Malla, Siva Ganesh
528	A Maximum Power Point Tracking of Solar PV System via Black Widow Optimization Algorithm	Gautam, Abhinav K.; Siddiqui, Khadim Moin *; Bakhsh, Farhad Ilahi; Pandey, J. P.; Verma, K. S.; Chaudhary, Nikhil

Day 3: Tuesday (16th December 2025)
14:00hrs-15:45hrs
Technical Session 22:
SS 11: Artificial Intelligence Meets Green Innovation: Emerging Sustainable Technologies for Future Electrical Networks
(Conference Hall 4, Campus 6, KIIT DU)
Session Chairs: Dr. Nirmalya Mallick, Dr. Soumen Biswas, Dr. Arnab Ghosh, Dr. Rajib Banerjee
Coordinator: Dr. Samita Rani Pani

Paper ID	Title	Author
75	Real-Time Energy Optimization in IoT Microgrids Using AI-Based Prediction Models for Solar Power Integration	Pradhan, Biki; Biswas, Mainak; Swain, Rajeswari; Ghosh, Arnab
77	Hybrid Transformer-LSTM Solar & Renewable Energy Forecasting for Resilient Microgrid Management	Swain, Rajeswari; Biswas, Mainak; Ghosh, Arnab
256	Comparative Review of Advanced Bidirectional DC–DC Converters for EV Charging Applications	Das, Phularenu; Mondal, Souvik
297	A Comprehensive Study on Driving Cycle for Electric Vehicle Application	Mukherjee, Arghya; Chatterjee, Shantanu; Banerjee, Sudipta; Manna, Pranendu; Changder, Samit; Chakraborty, Chinmoy
298	Bio-Inspired Optimization of Adaptive Controllers for Automatic Generation in Thermal–Ocean Integrated Networks	Upadhaya, Debodyuti; Bhattacharya, Anagha; BISWAS, SOUMEN; Banerjee, Sudipta; Roy, Gargi; Dutta, Susanta
299	LMI-Based Delay Margin Design in Deregulated Hybrid Power Systems with Energy Storage Integration	Roy, Gargi; Biswas, Soumen; Bhattacharya, Anagha; Upadhaya, Debodyuti; Dutta, Susanta
300	Unified OPF–LFC Framework for Hybrid Thermal–Wind–EV Power Systems Using Fractional Order Control and Gazelle Optimization	Upadhaya, Debodyuti; Bhattacharya, Anagha; BISWAS, SOUMEN; ROY, GARGI; DUTTA, SUSANTA

Day 3: Tuesday (16th December 2025) 14:00hrs-15:45hrs		
Technical Session 23: Transportation Electrification and Automotive Technologies *(Conference Hall 5, Campus 6, KIIT DU)* Session Chair: Dr. Manmath Badapanda, RRCAT GoI Coordinator: Dr. Arjyadhara Pradhan		
Paper ID	**Title**	**Author**
279	LSTM based DDos Attacks Prevention and Detection for EV Charging Batteries	Shaik, John
382	Comparative Analysis of Step-Up Partial Power Processing Conversion Architectures for Electric Vehicle Fast Charging	Satapathy, Manoranjan; Prajapati, Ashish; Edpuganti, Amarendra
388	Balanced Truncation Integrated Static Error Compensation Approach for Reduced-Order Modeling of High-Order Electric Vehicle Systems	Duddeti, Bala; Ankireddy, Narendra; Kadha, Vijaya Kumar; Gadupudi, Lakshminarayana; Meena, Veer Pratap
518	Design and Analysis of Novel Hybrid Coil for Large Horizontal and Vertical Misallignment-Tolerant	KUMAR, BIBEK; BHATTACHARYA, AVIK

Day 3: Tuesday (16th December 2025) 14:00hrs-15:45hrs		
Technical Session 24: **SS 06:** Design, Modelling and Control of Renewable Energy based EV Charging Infrastructures *(Conference Hall 6, Campus 6, KIIT DU)* Session Chairs: Dr. Ashutosh K Giri, Dr. Sabha Raj Arya, Dr. Sombir Kundu, Dr. Yogendra Arya Coordinator: Dr. Suchismita Roy		
Paper ID	**Title**	**Author**
364	Enhancing PV Array Performance Under Partial Shading Using Logic Shifting Array Reconfiguration	Mohapatra, Alivarani; Parida, Asit Kumar; Dash, Rudra Narayan
381	Experimental Development of an Advanced Single Switch Converter Circuit for Improving RES's Efficiency	Eswaraiah, B.; Balakrishna, K.
429	Photovoltaic Based Standalone EV Charging System	Jariwala, Hiren; Shah, Nilesh
438	Design and Simulation of High Frequency SiC-based Dual Active Bridge Converter	PATTNAIK, MONALISA; Basva, Chandana; Bhaskar, Poornesh; Varma, Katru Vikash
467	An Optimization Control Algorithm based Standalone Solar–Wind–BESS Hybrid System for Stable Power Supply	Tyagi, Mohit; Meena, Duli Chand; Kundu, Sombir
474	A Simulative Analysis of P&O, ANN, and IC Controllers for Fuel Stack Interfacing H2Vehicles	Eswaraiah, B.; Balakrishna, K.
527	Implementation of an Adaptive Control Approach in a Single-Phase Grid-tied Solar PV System for Power Quality Enhancement	Shankar, Shiv; Kundu, Sombir; Giri, Ashutosh K.

| 529 | A Comprehensive Analysis, Design and Implementation of Optimized Current Control for Enhanced Dynamic Performance and Stability in Single Inductor-Dual Output DC-DC Buck Converter | Averneni, Vijayasri; Chakravarty, Arghya; Nizami, Tousif Khan; Deb, Dipankar |

Poster Sessions

Day 1: Sunday (14th December 2025) **11:30hrs-12:00hrs**		
Poster Session 1: **Power Electronics Converters**		
(Annexure Centre, KIIT Convention Centre, Campus 6, KIIT DU) Session Chair: Dr. Monalisa Pattnaik, NIT Rourkela Coordinator: Dr. Srikanta Mohapatra		
Paper ID	**Title**	**Author**
113	Shunt Reactive Compensation through AC-to-AC Triac Based Converter for Small & Medium Industry Applications	Patel, Ranjeeta; Tripathy, Rishi Ranjan; Nayak, Byamakesh; Behera, Subrat; VVSR Chowdary, Kantipudi
216	Enhanced Performance of a 7-Level Diode-Clamped Multilevel Inverter Using APOD PWM and Active Capacitor Voltage Balancing	Behera, Subrat; Patel, Ranjeeta; Tripathy, Rishiranjan; Soni, Ankit; Athapaththu, Ravindu; Guerrero, Josep M
290	A High Gain Restructured DC-DC Quadratic Boost Converter (RDQBC) Applicable for Fuel Cell	Behera, Subrat; Patel, Ranjeeta; Nayak, Byamakesh; Roy, Tapas; Khadkikar, Vinod
530	Solar PV-Fed High-Gain 21-Level Switched Capacitor Multilevel Inverter under Partial Shading	Kumar Soni, Ankit; Chandra Jana, Kartick; Kumar Gupta, Deepak; Athapaththu, Ravindu
535	THD Analysis of Eleven Level Multilevel Inverter for Optimum Implementation of Maximum Power Point Tracking of Solar PV System	Sahu, Harshita; Parida, Sritam; Sahu, Manoj Kumar; Behera, Siddhartha

Day 1: Sunday (14th December 2025)

11:30hrs-12:00hrs

Poster Session 1:

Transportation Electrification and Automotive Technologies

(Annexure Centre, KIIT Convention Centre, Campus 6, KIIT DU)

Session Chair: Dr. Pravat Kumar Ray, NIT Rourkela

Coordinator: Dr. Banishree Misra

Paper ID	Title	Author
74	Electrification Pathways for Indian Road Transport: Trends, Emissions and Technological Challenges	Shijas V., Mohammed; Chakkuchan, Panithan; Dash, Santanu Kumar; Thinnsurat, Kamon; Hassan, Mohd Khair; Chudjuarjeen, Saichol; Korkua, Suratsavadee
172	Review of the Modern Passive Cell Balancing Techniques Implemented to the Batteries of EVs	KARMAKAR, SHUKLA; Bohre, Dr. Aashish Kumar
180	Design and Control of a Novel High Efficient Three Phase AC, DC Converter Using Active Full Bridge and LLC Resonant Topology for Fast EV Charging	Atal, Jay Kumar; Rana, Shreya Sonakshi; Sen, Abhirup; Ghatak, Sriparna Roy
340	Estimation of State of Charge of Electric Vehicle battery for transportation using Extended Kalman Filter method	Vaish, Jayati; Siddiqui, Khadim Moin; Bakhsh, Farhad Ilahi; Shrivastava, Sandhya; Kumar, Amit; Pal, Bhupesh Kumar
488	Unified Commutation Error Analysis and Compensation for 120-Degree BLDC Motor	Kumari PALLA, SHRAVANI; Behara, Ranjan Kumar
491	Sensorless Detection of Inter-Turn Short Faults in EV Starter Motors via Wavelet and Statistical Feature Extraction	GANGULY, POULOMI; Datta, Tirthankar; Chattopadhyay, Surajit

Day 1: Sunday (14th December 2025)

11:30hrs-12:00hrs

Poster Session 1:

Renewable Energy and Energy Storage Systems

(Annexure Centre, KIIT Convention Centre, Campus 6, KIIT DU)

Session Chair: Dr. B.K. Nayak, KIIT DU

Coordinator: Dr. Alivarani Mohapatra

Paper ID	Title	Author
9	Optimizing Photovoltaic System Performance Using Fuzzy Logic and Perturb and Observe Techniques for Enhanced MPPT Control	Raja Sekhar, Birlangi; Kumar Gouda, Pramod; Kumara Swamy, Simhadri; Krishnamoorthy, Murugaperumal; Shanmugasundaram, Hariharan
71	Low Energy Building Management Using Arduino Microcontroller	Reddy, Chamakura Krishna; Manojkumar, Rampelli; Jena, Prasanta Kumar; M, Prashanth; Balusu, Srinivasa Rao; C Venkata,

		Subba Reddy
138	Far and Near Optimization based Maximum Power Point Tracking under Partial Shading Conditions of PV System	Babu, G. Suresh; Singh, Dharmendra Kumar; Prasad, S. Thulasi; Babu, K. Trinadh; Kotiyal, Arnav; Anitha, R.; Janapati, Krishna Chaithanya; Bale, Ajay Sudhir; Kandi, Bhanu Prakash
153	Grey Wolf Optimization based MPPT of PV System Powered Water Pumping System Driven by SRM under Partial Shading Conditions	Harish, Cholleti; Loganathan, P.; G, Sudha; Babu, K. Trinadh; Pundir, Sumit; Jebaseeli, S. Kanmani; Janapati, Krishna Chaithanya; Bale, Ajay Sudhir; Kandi, Bhanu Prakash
316	Modeling of 4H-SiC MESFET by Including Thermal Effect, Surface and Substrate Trappings Using Botox Optimization Method	Yarlagadda, Nagalakshmi; Reddy, Satti Sudha Mohan; Karthikeyan, N.; Veerraju, M. Sai; Senthilkumar, S.; Santhi, G. B.; Dravid, Sampada Viraj; Bale, Ajay Sudhir; Kandi, Bhanu Prakash
318	Hybrid Decomposition-Driven Transformer Framework for Tilt Optimization of Solar Panels under India's Diverse Climatic Zones	Yadav, Amit; Yadav, Vibha; Mahto, Tarkeshwar
323	Advanced Sizing Strategy of Battery Energy Storage in PV-Wind Integrated Microgrid	Das, Madhab Chandra; Swain, Sarat Chandra; Patel, Ranjeeta; Mahala, Biranchi Kumar; Bhatta, Sunil Kumar
395	Transparent PEM-FC Performance Analysis under the Optimal Clamping Pressure Applied at its Bolts	Srinivasarao, B.; Khan, Mohammad Aasim; Lakshmi, E V Naga; Prasad, P. Venkata; Nayak, Smruti Ranjan; Janapati, Krishna Chaithanya; Alhawsawi, Edrees Yahya; Michael, Thresia; Bale, Ajay
444	Improving PV Array Performance through a Row Column Rearrangement Reconfiguration in Partial Shading Conditions	Mohapatra, Alivarani; Hassan, Md Sabir; Roy Ghatak, Sriparna
500	Optimizing Output Power in Multidimensional PV Arrays Through Reconfiguration Under PSC	Mohapatra, Alivarani; Kumar Parida, Asit; Patel, Ranjeeta

Day 1: Sunday (14th December 2025) 11:30hrs-12:00hrs Poster Session 1: Automation, Control and Digital Systems *(Annexure Centre, KIIT Convention Centre, Campus 6, KIIT DU)* Session Chair: Dr. S.C. Swain, KIIT DU Coordinator: Dr. Subhra Debdas		
Paper ID	**Title**	**Author**
29	Mathematically-Driven Architectures and Cryptographic Protocols for Ultra-Reliable, Low-Latency, and Scalable	Dhatterwal, Jagjit Singh; Dipesh, Dr.

	Secure Networking in Post-Quantum 6G Communication Systems	
37	IoT-Driven Access Control and Usage Tracking for High Voltage Circuit Breakers with i-Button	Balpande, Suresh; Anjankar, Shubham
45	Verilog-Enabled Simulation and RTL Synthesis of SPECK Algorithm for Robust and High-Speed Cryptographic Operations in VLSI	Innovation, Research
79	Transformer Health Monitoring Using IoT	Zaman, Fardin; Hazarika, Anurag; Bhattacharjee, Monodeep; Khurshid, Muhammed Salman
100	Bio-Inspired Optimization of Fractional-Order Controllers for Enhanced Robotic Manipulator Performance	maheshwari, ankita; Agrawal, Alka; Goyal, Vishal

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Day 1: Sunday (14th December 2025)
16:00hrs-16:30hrs
Poster Session 2:
Power System & Smart Grids
(Annexure Centre, KIIT Convention Centre, Campus 6, KIIT DU)
Session Chair: Dr. C.K. Panigrahi, KIIT DU
Coordinator: Dr. Pradeep Kumar Sahu

Paper ID	Title	Author
96	A Comprehensive Review of Machine Learning Techniques for Enhancing Energy Efficiency in Renewable Integrated Smart Grids	Goswami, Rahul; Roy, Dr Ranjit; Mandal, Kamal Krishna
112	Coordinated Operation of Grid Following and Grid Forming Inverters for Black Start Ability	Kumar, Akshay; Kumar, Pankaj; Roshan, Rakesh
191	Localization of Mechanical Fault in Power Transformer with Multi-terminal FRA Measurement: An Experimental Study	Biswas, Bidhan; Kiran, Dattu K
200	Design of a Power System Stabilizer for Transient Model of Single Machine Infinite Bus System	Parida, Ashish Ranjan; Abrol, Udhay; Singh, Arsita; Singh, Amisha; PRAKASH, ABHINEET
206	Design and Modelling of a robust type-3 Fuzzy controller for frequency stabilization enhancement of AC Microgrid	Sahu, Dr Prakash; Bhatta, siunil Kumar; Swain, Sarat Chandra Swain; Sahoo, Buddhadeva; Samantaray, Subhransu
211	Tab-Transformer Based Deep Learning Framework for Electricity Theft Detection in Smart Grids	Mishra, Manohar; Sahu, Rajat Kumar; Naik, Bighnaraj; Bhoi, Geetanjali; Singh, Jai Govind; Pachauri, Rupendra Kumar
322	Cost Optimization Analysis of Hybrid Renewable Energy Systems Using Various Techniques	Das, Madhab Chandra; Swain, Sarat Chandra; Patel, Ranjeeta; Mahala, Biranchi Kumar; Bhatta, Sunil Kumar
328	CNN-Based Protection Scheme for Fault Detection and Classification in Low-Voltage PV based DC Microgrids	Dalai, Ramaprasanna; Swain, Sarat; Patel, Ranjeeta

412	Dynamic Synchrophasor Estimation under Frequency Deviation and Oscillations using Power Spline Adaptive Filter	Saxena, Kuber; Samantray, Subhransu Ranjan; Nanda, Dr.
497	Fault Detection in AC Microgrid Using CNN, GRU and Attention Mechanism	Pradhan, Dr.Rudranarayan; Mangaraj, Ritesh Kumar; Mohapatra, N.S. Prabhupad; Tripathy, Vivek; Padhi, Purbasha; Nanda, Devi Prasad
503	Autonomous Energy Management of Standalone Interconnected Low Voltage DC Microgrids	Suman, U Sai; Behera, Niranjan; Mohapatro, Sankarsan
531	A Comparative Study of Different Policy of Firewall Protection for PV Micro Grid System	Sahoo, Asit Kumar; Mohanty, Subodh Kumar; Patel, Ranjeeta

Day 1: Sunday (14th December 2025) 16:00hrs-16:30hrs Poster Session 2: Artificial Intelligence, Machine Learning & Signal Processing for Power & Energy Applications (Annexure Centre, KIIT Convention Centre, Campus 6, KIIT DU) Session Chair: Dr. Rudra Narayan Pradhan, OUTR Coordinator: Dr. Sriparna Roy Ghatak		
Paper ID	**Title**	**Author**
47	Revolutionizing Air Quality Monitoring with IoT: Developing a Real-Time, Cost-Effective System Using BME680 Sensors and ESP-8266 for Enhanced Public Health and Environmental Sustainability in Urban Areas	Innovation, Research
92	Multiscale Teager Permutation Entropy-Optimized Adaptive Windows for Time-Frequency Bearing Fault Diagnosis	Krishnendu, K; Pradhan, Pyari
98	A Novel Grey Wolf Optimization Algorithm with Enhanced Exploration, and Exploitation Ability	Samal, Padarbinda
152	Economic Load Dispatch Optimization Using Dream Optimization Algorithm	Samal, Padarbinda
210	Fault diagnosis of renewable energy integrated Power System: Deep Transfer Learning Approach	Mallick, Ranjan Kumar; Mohanty, Sagarika; Nayak, Pravati; Mishra, Sairam; Kumar Nanda, Manas
326	Classification of Incipient Fault in Underground Distribution Networks Using Extreme Gradient Boost Classifier	Swain, Sarat; Kumar Sahoo, Pravat; Mishra, Sanhita
408	Federated Learning: A Local Model Weight Averaging Approach for Smart Home Load Forecasting	Hans, Surender
455	Machine Learning Models for Solar Radiation forecasting: A comparative study in Jharkhand	Tiwari, Rumit; Namrata, Kumari; Kumar, Mantosh; Kumar, Nishant
490	Maximum Power Point Tracking of PV System under Partial Shading Conditions by Using ALS Optimization based FPPT Algorithm	Biabani, Mohammad Abdul Khader Aziz; Sakthivel, K.; G, Abraham C; Rao, S. Nagaraja; Mehra, Pramod; Kavitha, P.; Devi,

		T. Anuradha; Bale, Ajay Sudhir; Kandi, Bhanu Prakash

Day 1: Sunday (14th December 2025)
16:00hrs-16:30hrs
Poster Session 2:
Electrical Machines and Industrial Drives
(Annexure Centre, KIIT Convention Centre, Campus 6, KIIT DU)
Session Chair: Dr. Ranjan Kumar Behera, IIT Patna
Coordinator: Dr. Rudra Narayan Senapati

Paper ID	Title	Author
55	An Optimal Design of Multi-Phase PMSM Based on Volume, Cogging Torque, and Power Loss Minimization for Electric Vehicle	Lemma, Berhanu; Pradabane, Srinivasan; Medin, Nebyat
94	Duty Ratio Modulated MPPT Control for Sensorless Induction Motor Drives in Off-Grid Solar Water Pumping Systems	Mishra, Anjanee; Pandey, Anand Vardhan
209	Performance Improvement of Five-Phase Induction Motor Drive using MRAS with Large Voltage Vectors	Ranjan, Abhishek; Behera, Ranjan Kumar
472	Real-Time Hardware Implementation and FFT Analysis Approach of Different PWM Techniques for Five-Phase Two-Level VSI using F28335 DSP	NAYAK, JEEBAN; BEHERA, RANJAN KUMAR
493	Enhancing Wide-Speed Operation of IPMSM Drives: Integration of FOC with MTPA and Field-Weakening Strategies	Khamari, Sephali; Kumar, Prashant; Muduli, Utkal; Behera, Ranjan Kumar

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Day 1: Sunday (14th December 2025)
16:00hrs-16:30hrs
Poster Session 2:
Power Quality Issues and Mitigation, FACTS and Custom Power Devices
(Annexure Centre, KIIT Convention Centre, Campus 6, KIIT DU)
Session Chair: Dr. Tapas Roy, IISc Banglore
Coordinator: Dr. Sarita Samal

Paper ID	Title	Author
137	Novel Control of Unified Power Flow Controller Using Modified Invasive Weed Optimization based PI Controllers	Sekhar, G Tulasichandra; Srinivasan, K. G.; Reddy, Ch Lokeshwar; K, Saneep; Prasad, Pareshwar; Esakkiammal, U.; Mounica, P.; Bale, Ajay Sudhir; Kandi, Bhanu Prakash
222	Harmonic Quality Enhancement of Single-Phase 7-Level	Panda, Samudra; Maneesh, Palisetty; Kundu,

	CHB-Multilevel Inverter Using Triplen-Harmonic Elimination and Unequal DC-Link Based SHM-PAM Schemes: A Comparative Study	Sourabh; Banerjee, Subrata
315	Enhancement of the Power System Stability with a Variable Structured TCSC Controller	Rao, C. Srinivasa; Prasad, P. Venkata; Veerraju, M. Sai; Haidari, Moazzam; Dhasmana, Gulshan; Thangam, V. Thirumani; Srinivas, N.; Bale, Ajay Sudhir; Srihari, T.
327	Transformation of Radial to Ring Power Distribution Network for Enhanced Operation: Case of Dire Dawa University	Lemma, Berhanu; Pradabane, Srinivasan
440	Empowering Renewable Energy: The Role of Battery Storage and Digital Platforms in Solar PV Systems	SIKKAM, UDAY CHANDRA; Sahoo, Buddhadeva; K Shiva, Chandan; Karthik, Markala

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