

## SCOPE OF CONFERENCE

SGESC-2025 is the 3<sup>rd</sup> International conference on **Smart Grid Energy System and Control (SGESC)** to be organised by the Department of Electrical Engineering, National Institute of Technology, Kurukshetra. The 1<sup>st</sup> SGESC was organized in the year 2021 from 07-09 March 2021, sponsored by TEQIP-III. The 2<sup>nd</sup> Int. Conf. SGESC was organized in the year 2023 from 07-09 April 2023. This year the conference has kept its theme **Green and Sustainable Energy Systems**. The Conference aims to stimulate the exchange of information on technological advances, latest research and policies in the field of theatrical, experimental and applied aspects of electrical engineering, including Smart Grids, Green and Renewable Energy Systems, microgrids, energy management, Power electronics & Drives, Artificial Intelligence & Soft Computing, Environmental Science, Geothermal, Bioenergy, Biomass Energy, Waste-to-Energy, Sustainable Energy and Developments, Solar Energy, Wind Energy, policies/regulation, planning operation with RES, Environmental Engineering and Environmental Science, Green Buildings, Impact on Agriculture, smart transportation etc. with an emphasis on Educating and informing environmental researcher, industry professionals with the latest knowledge of technologies that can be applied to different fields. This conference shall provide a useful forum to the Academicians, Technologist, Entrepreneurs and Research scholars in the respective domain for further benefit of the mankind at large. High quality full length papers are invited for the conference and the proceedings of the conference will be published in SCOPUS indexed Springer.

### NIT KURUKSHETRA

NIT Kurukshetra, formerly known as Regional Engineering College, Kurukshetra was founded in 1963. It was conferred upon the NIT status, with Deemed University on June 26, 2002. The Institute offers several courses, in various disciplines of B.Tech., M.Tech., MBA and MCA and Ph.D. with an annual intake of about 1500 students. Institute also provides excellent facilities for advanced research in the emerging areas of Engineering, Science, and Technology. The institute has well qualified and dedicated faculty along with supporting staff, laboratories and other infrastructure. The infrastructure is geared to enable the institute to produce technical personnel of high quality.

### ELECTRICAL ENGINEERING DEPARTMENT

The Department offers B.Tech, M.Tech and Ph.D. Degrees. The B.Tech. Course in Electrical Engineering provides is run with a number of electives, which enables the students to specialize in one of the fields i.e. Power Apparatus and Systems; High Voltage Engineering; Electronics and Instrumentation; Computer Applications; Information and Control. Presently, the department has three post graduate

programs, M.Tech., in Control Systems; Power Systems; Power Electronics and Drives and offers Ph.D. in different areas to keep synergy with the evolving innovations and developments in all disciplines of Electrical Engineering.

### KURUKSHETRA

Kurukshetra is described as DHARAMKSHETRA, with historical and religious importance. Here, the battle of Mahabharata was fought, and Lord Shree Krishna preached the philosophy of "KARMA" as enshrined in the holy book "Shrimad Bhagwad Gita." It is one of the premier pilgrimage center attracting devotees all round the year. Kurukshetra is very well connected by Rail, Delhi-Ambala section, by Road (NH1, connecting Delhi-Chandigarh-Amritsar-Jammu) and by Air (Delhi 160 km and Chandigarh 80km). The NIT Kurukshetra campus is situated about 10 km from Pipli, Bus stand located on NH1 and about 4 km from Kurukshetra railway station.

### IMPORTANT DATES:

Last date for submission of paper	30/11/2024
Intimation of acceptance (on website or by email)	on or before 15/01/2025
Submission of Camera Ready Paper	30/01/2025
Early Bird Registration Starts	10/02/2025
Early Bird Registration Ends	20/02/2025
Last date of Registration with late fees	23/02/2025

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## 3<sup>rd</sup> International Conferences on

## Smart Grid Energy Systems and Control (SGESC-2025)

Theme: **Green and Sustainable Energy  
Systems**

(Feb. 21-23, 2025)

IN HYBRID MODE (ONLINE & OFFLINE)



Organized by

Department of Electrical Engineering,

**National Institute of Technology  
Kurukshetra  
Kurukshetra, Haryana, India**

**CONFERENCE TRACKS**

**TRACK-1: Smart Grid, EMERGING TECHNOLOGIES AND GRID DECARBONIZATION**

Micro grids, smart grids, Protection Issues of Hybrid Microgrids, Challenges in Grid Integration of microgrids, Security and stability of islanded Microgrids, Active distribution networks and AC/DC Microgrids, Demand side energy management & prosumers participation. Rural Development through Green Energy, energy storage, Cloud Computation/ Edge Computation, Data Acquisition and Monitoring, Data Management, Distributed Optimization, Modern Heuristic Optimization, High Performance Computing for Grid Analysis big data analytics and machine learning real-time vulnerability assessment, demand management, predictive analytics, theft detection, energy trading, economic dispatch etc. Multi Agent Systems for Power Systems, Sensor Networks for Power Systems

**TRACK-2: POWER SYSTEM PLANNING AND OPERATION WITH RENEWABLE ENERGY**

Active Distribution Networks, Multi-Energy Systems, Simulation & Control For Power System With High Penetration of Renewables, Impact Of Climate Change Impacts on Grid, Smart Cities Solutions, Urban Power System, T&D Interface Issues and Solutions, Bulk Power System Operations and Planning, Power System Flexibility, Restoration and Mitigation of Extreme Events, Power System Restoration with Renewable Energy Sources, Electrical and Gas Systems, Integrated Resource Planning, Advancements in ADMS, DERMS, EMS, and OMS Solutions, Uncertainty Management,

**TRACK-3: ELECTRICITY MARKETS, BUSINESS MECHANISMS AND POLICY/REGULATIONS**

Electricity Market, Market Mechanism, Power System Economics, Carbon Transactions, Ancillary Services, Blockchain and Transactive Energy Systems, Energy Policies, Future Energy Markets, HVDC and FACTS Economics And Operating Strategies, Risk Management

**TRACK-4: DATA DRIVEN ANALYTICS IN ENERGY SYSTEMS**

Artificial Intelligence and Machine Learning, IoT and ICT for Smart Grids, Data Analytics, Energy Efficiency, Big Data, Digital Twin, Energy Management, Demand Response/ Demand Side Management, State Estimation Tools, Forecasting in Energy Systems, System Modelling and Simulation, Co-Simulation and Real-Time Simulation, Cloud Computation/ Edge Computation, Data Acquisition and Monitoring, Data Management, Distributed Optimization, Modern Heuristic Optimization, High Performance Computing for Grid Analysis, Wide area measurements and Control, Wide area measurements, WAMS, Advances in control & instrumentation, Adaptive, robust, distributed, intelligent, and digital control, Process control and automation, Estimation, modelling and identification.

**TRACK-5: HYBRID MICROGRID AND IOT**

Renewable power generation & clean energy technologies, Integration of renewable energy sources and storage systems, Renewable power generation forecasting and Optimization, Protection Issues of Hybrid Microgrids, Challenges in Grid Integration of microgrids, Security and stability of islanded Microgrids, Active distribution networks and AC/DC Microgrids, Demand side energy management & prosumers participation, IoT and resource aggregation

**TRACK-6: ELECTRIC MOBILITY, WIRELESS POWER TRANSFER AND ENERGY STORAGE SYSTEMS**

Power electronics for hybrid and electric vehicles, Small, medium and long-range wireless power transfer, Modelling and design of wireless power transfer coils, Vehicle power electronic circuits and systems, Charging systems, Batteries, super capacitors and flywheel, Power electronics topologies for integration of energy storage, Power electronics for hybrid and electric vehicles, Small, medium and long-range wireless power transfer, Modelling and design of wireless power transfer coils, Vehicle power electronic circuits and systems, Charging systems, Batteries, super capacitors and flywheel, Power electronics topologies for integration of energy storage etc

**TRACK-7: POWER QUALITY, CONVERTERS, AND DRIVES**

Advanced topologies, Efficiency and reliability, Modelling, control and stability, Machine learning applications in power converters, Design, optimization and condition monitoring of electrical machines, Advanced control of drives, Converters and control for improving power quality

**TRACK-8: DYNAMICS AND CONTROL OF POWER SYSTEM**

Power System Dynamics, Operation, and Control, Medium and Low Voltage DC System, HVDC Transmission Systems, Power System Reliability, Protection, and Resilience Challenges in the Future Grid, HVDC & FACTS dynamic performance and modelling, Islanding detection and Identification, stability issues, power quality Issues, Voltage Stability Assessment, Power System Dynamic Modelling, Cascading Failures, Dynamic Security Assessment, Interoperability in VSC-HVDC Networks.

**TRACK-9: BIO FUELS, BIO ENERGY, THERMAL ENERGY**

Bioenergy supply management strategies, Biofuels in developing economies, Biomass, Renewable Energy for Power and Heat, Solar thermal and photovoltaics, Greening the Fossil Fuels, Carbon and Methane capture, Thermal and recycling, Solar Desalination, Hydrogen and fuel cell, Alternative Fuels, CFD in green energy etc.

**TRACK-10: CLIMATE CHANGE AND RENEWABLE ENERGY, WASTE TO ENERGY,**

Rapid urbanization and energy-environmental implications, Green Energy in Transport and impact on environment, Remote sensing and GIS for climate change analysis and prediction. Waste management, green energy and impact on waste, energy harvesting from waste, Energy in food production, agriculture and processing etc.

**TRACK-11: ENERGY, ENVIRONMENT AND GREEN BUILDINGS**

Integration of renewable energy sources in buildings, Smart Buildings, Sustainable materials for buildings, Greening Urbanization and Urban settlements, Energy and Health, Energy and Water, Energy efficiency in building designs and management, Integration of renewable energy sources in buildings, smart



transportation, Advance biofuel for a sustainable heavy-duty transport and aviation, Sustainable materials for buildings, GIS applications in renewable energy, green energy sources identification using satellite remote sensing, Environmental applications of remote sensing and GIS, AI in green buildings, Drone applications in sustainable buildings etc.

#### TRACK-12: NANO-MATERIALS, PHASE CHANGE MATERIALS FOR SUSTAINABLE ENERGY SYSTEMS

Nanoenhanced phase change materials for thermal storage, fluids, energy storage in photovoltaic thermal management systems, PCM for RES storage, sustainability, applications of PCM for sustainable energy, hybrid nanoPCM and applications to storage technology, development of different PCMs for renewable energy sustainability, nanotechnology for RES etc.

#### SUBMISSION GUIDELINES & INDEXING

Research papers should present novel perspectives within the general scope of the conference.

The manuscript must adhere to the Springer conference template format. The conference paper template is available in conference website. The paper length should not exceed 08 pages. All submitted papers will be subjected to a "Plagiarism check" by Turnitin Software. Papers achieving less than 20% similarity score will only be sent for the formal review. Paper must be submitted only in PDF format. To submit the manuscript, the authors are requested to use the easy chair link available in conference website. The papers received will be peer reviewed before being accepted for presentation. All presented papers will be published in prestigious Springer Series/ Elsevier/ Inderscience. The volumes of this book series will be submitted for inclusion to the leading indexing services including: ISI Proceedings, EI-Compindex, SCOPUS, MetaPress. Publication in the book under series 'Lecture Notes in Electrical Engineering' (Springer, Germany) will also be made available in Springer Link digital library.

#### REGISTRATION INFORMATION

It is mandatory for at least one author of an accepted paper for the paper to appear in the proceeding. Co-authors must register by paying full registration fees, in case they want to attend and get presentation

certificate as a conference delegate. The application should be made on the registration form and should accompany registration fee as below:

Early bird registration

Participant's category	Early Registration Fee* (in Indian Rupees)	
	Online	Offline
Students Authors	1000/-	1500/-
Faculty Delegates	2000/-	2500/-
Industry Delegates	2500/-	3000/-
Foreign Participants	\$100	\$200/-

Late Registration

Participant's category	Late Registration Fee* (in Indian Rupees)	
	Online	Offline
Students Authors	1500/-	2000/-
Faculty Delegates	2500/-	3000/-
Industry Delegates	3000/-	3500/-
Foreign Participants	\$110	\$220/-

\* **Registration fee is non-refundable**

Registration includes presenting 2 accepted paper.

One single individual can have a maximum of 2 papers per registration.

Payment can be made through SBI Collect. Payment link will be displayed soon. Registration fee is to be paid through a bank demand draft in favor of "Director, NIT Kurukshetra" payable at SBI, NIT Kurukshetra or Online in Director, NIT Kurukshetra A/c No. 10116885013; IFSC: SBIN0006260.

#### SPONSORSHIP

The organizing committee of SGESC-2025 invites companies and organizations to advertise themselves during the conference. Sponsors can showcase their service, technology and solutions to an august gathering of the foremost technologists in these areas in India. The conference also provides extensive networking opportunities, which can be fully utilized by availing the complimentary registrations awarded to the sponsors. The conference presents the sponsorship opportunity in one of the following sponsor categories:

Sponsor Type	Amount	No. of Free Registration	Displayed on website of the conference
Diamond	60000	5	yes
Gold	40000	3	yes
Silver	20000	2	yes
Bronze	10000	1	yes

Apart from above all the sponsorship, categories will attract the following:

- Display of the sponsor's logo on the homepage of the conference website and other official documents of the conference
- Include one brochure/ pamphlet in the registration kit to the conference delegates
- Acknowledgment during the inaugural session
- Colour advertisement of sponsor details/ product details in the abstract book for Diamond, Gold and Silver sponsors

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#### **ADDRESS FOR CORRESPONDENCE: SGESC-2023**

**Dr. Rahul Sharma, Dr. Pradeep Kumar,  
Dr. Amit Kumar,  
A.P., Electrical Engg. Department,  
National Institute of Technology  
Kurukshetra-136 119, India**

**Contact:** (M) +91-7206228032, 8950213417,  
9588780711

**Email:** [sgesc@nitkkr.ac.in](mailto:sgesc@nitkkr.ac.in),

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