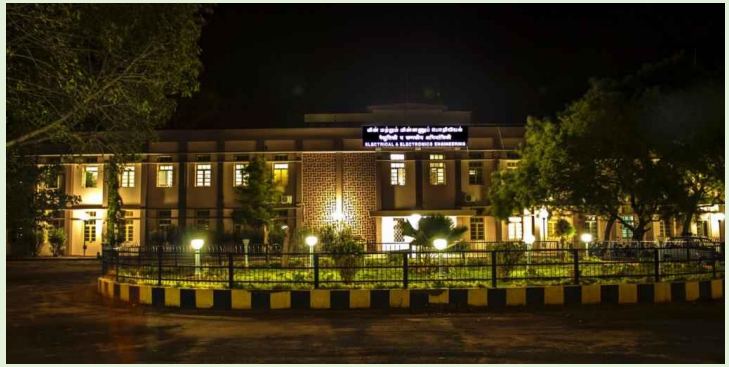
A Five-Day Hybrid Workshop on

Smart Grid Resilience: Integration of Inverter-Based RESs, EVs, and Cybersecurity Measures (SGIEC 2025)

08th Sept. to 12th Sept., 2025



Organized by

Department of
Electrical and Electronics Engineering
National Institute of Technology, Tiruchirappalli
Tamil Nadu – 620 015

Under SSR Activity
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Coordinators

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Department of Electrical and Electronics Engineering, National Institute of Technology, Tiruchirappalli.

About the Workshop:

The workshop aims to provide a comprehensive understanding of modern smart grid systems, their challenges, and solutions for enhancing resilience. With the increasing penetration of inverter-based RESs and EVs, traditional grids are undergoing a paradigm shift, necessitating robust integration strategies and cybersecurity frameworks.

This program will cover the fundamental principles of smart grid architecture, dynamics of inverter-based systems, grid stability under high renewable penetration, and the bidirectional impact of EVs as both load and storage units. It will also delve into the cybersecurity vulnerabilities in smart grids and explore countermeasures and resilience-enhancing techniques.

Participants will gain exposure to simulation tools, real-time digital simulators, and case studies, enabling hands-on experience in modeling and analysis. The workshop is ideal for faculty members, researchers, and industry professionals keen to explore the intersection of power systems, renewable energy, electric mobility, and digital security.

Topics to be covered:

- DGs and Microgrid
- Wind Energy Conversion Systems for Grid connected and standalone operation
- Inverter Based Resources (IBR)
- Grid Forming Converters
- Cybersecurity Issues in Smart Grid
- Electrical Machines for EV
- Converters for Electric Vehicle
- Energy Storage Systems
- Real Time Simulators Demo (Speedgoat, Opal-RT and Entuple)

Registration Details

Registration Fee:

UG/PG/PhD Student - Rs. 500/-
Faculty - Rs. 1000/-
Industry Personnel - Rs. 2000/-

Registration Fee Payment Procedure:

1) **Click the link below (SBI I Collect)**
   https://www.onlinesbi.sbi/sbicollect/
2) **Type**
   CONFERENCE AND WORKSHOP NIT TRICHY
   in the search box and select it.
3) **In the Payment Category dropdown select**
   EEE 2025 – Smart Grid – SGIEC
4) **Fill the details and do the payment. Save the payment receipt. (Need to be submitted in the registration form)**

Registration Form:

Fill the google form in the below link after the payment

https://forms.gle/dJAzpsCZAykGMdbU6

Last Date to Register: 08.09.2025 (9 am)

Accommodation may be provided subject to availability (on a payment basis).
Food will be provided at the mess for a nominal rate.

About EEE:

The Department of Electrical and Electronics Engineering, NIT, Tiruchirappalli was started in the year 1964. It offers one Under-Graduate programme (B.Tech.), two Post-Graduate programmes (MTech. in Power Systems and Power Electronics) and also research programmes (M.S. and Ph.D.) in the various fields of Electrical and Electronics Engineering. After the institute became NIT, the department has grown not only in terms of student and faculty strength, but also in improving the laboratory facilities for the teaching and research purposes. Thus, the department has dedicated and state of the art teaching / research laboratories. The department is recognized for excellence in research (First Department in NIT-T to be accorded QIP status for Ph.D. program), teaching and service to the profession.

The faculty members have strong sense of responsibility to provide the finest possible education for both graduate and undergraduate students. The academic strength of the faculty is reflected by the alumni, many of whom are in the top echelons of industry and academia both in India and abroad.

About NITT:

National Institute of Technology, Tiruchirappalli (NIT Trichy) is one of India's premier public technical institutions, established in 1964 as the Regional Engineering College and elevated to National Institute of Technology status in 2003. Recognized as an Institute of National Importance, NIT Trichy is known for its excellence in engineering, science, architecture, and management education. Located on an expansive 800-acre campus in Tamil Nadu, it offers a range of undergraduate, postgraduate, and doctoral programs across 20+ departments.

It consistently ranks among the top 10 engineering institutes in India, with the NIRF 2024 placing it 9th in engineering and 31st overall. The institute has a stellar placement record, with top recruiters like Microsoft, Google, Morgan Stanley, and L&T, and B. Tech packages reaching up to ₹52 LPA. NIT Trichy is also a hub for advanced research and innovation, housing Centers of Excellence in areas like power systems, AI, IoT, and sustainable energy. It has received substantial funding from DST, MHRD, and DRDO, and maintains strong national and international collaborations.

The academic environment is supported by a flexible curriculum, high-quality faculty, and a strong emphasis on interdisciplinary learning and global engagement. In addition to academics, NIT Trichy fosters holistic student development through national-level technical and cultural fests like *Pragyan* and *Festember*, along with over 20 student-run clubs and societies. Facilities like smart classrooms, PARAM PORUL supercomputing lab, modern hostels, healthcare, and eco-friendly infrastructure ensure a vibrant and inclusive campus life. With its strong academic foundation, industry connections, and global outlook, NIT Trichy continues to play a vital role in shaping future-ready engineers, innovators, and leaders.

For Queries: Contact: **Dr. Suman M.**, *Assistant Professor,* Department of EEE, NIT Tiruchirappalli, sumanm@nitt.edu, **+91-9994121817**