



## REPORT ON

# **Indo-French International Seminar on Emerging Trends and Innovation in Power Electronics Converters for Revolutionizing Environmental Sustainability**

*17<sup>th</sup> - 21<sup>st</sup> November 2025*

***Jointly organised by JSS Academy of Technical Education, Noida & ESTIA Institute of Technology  
Bidart France. Supported by Indo-French Centre for the Promotion of Advanced Research (CEFIPRA)***

With the divine blessings of His Holiness Jagadguru Sri Shivarathri Deshikendra Mahaswamiji and under the esteemed guidance of the JSS Management, the Department of Electrical and Electronics Engineering has successfully hosted the Indo-French International Seminar on “**Emerging Trends and Innovation in Power Electronics Converters for Revolutionizing Environmental Sustainability**” *Jointly organised by JSS Academy of Technical Education, Noida & ESTIA Institute of Technology Bidart France. This seminar was supported, both financially and technically, by Indo-French Centre for the Promotion of Advanced Research (CEFIPRA), DST at the JSS Noida campus.*

The inaugural program was held on 17<sup>th</sup> Nov 2025. The program began with a curtain raiser by Dr. Ranu Pandey and Ms. Kanishka Verma, invocation, and ceremonial lamp-lighting by dignitaries. Participants and dignitaries were welcomed by Principal Dr. B. Manoj Kumar. Dr. Sujatha K S, Dean Academics, SKCET Coimbatore, who introduced the seminar’s objectives. The Chief Guest of the program, Prof. Shyama Rath (Member Secretary, AICTE), gave a thought-provoking address, which emphasized the rapid transformation in India’s power sector through technological advancement, the nation’s leadership in renewable energy, and the pivotal role of Indo-French cooperation in electric mobility, smart grids, and environmental sustainability. She noted India’s significant achievements in renewable energy and the importance of collaboration with France to develop intelligent, environmentally friendly power conversion systems. Dr. Nitin Seth, Director CIFIPRA and Mr. Tanuj Mittal (Dassault Systemes) were the Guest of Honor. Dr. Adriana Aguilera Gonzalez, French Coordinator from ESTIA Institute of Technology, France, reinforced the value of Indo-French research collaboration. The major highlight was the presence of French delegates from ESTIA Institute of Technology, France and eminent professors from IITs and NITs. Dr. H R Mahadevaswamy, Vice Chancellor of JSS University, delivered a notable address emphasizing institutional innovation and global knowledge exchange. Dr. B. Suresh, Pro-Chancellor and Director TED, JSS MVP, delivered an inspiring presidential address, highlighting the critical importance of research and collaboration in advancing science and technology. His words encouraged faculty and students to pursue excellence through joint efforts and international partnerships. Vote of thanks was given by the Indian Coordinator, Dr. Sanjiba Kumar Bisoyi, HOD



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Electrical and Electronics Engineering, JSSATE, Noida. The ceremony concluded with felicitation of dignitaries and the national anthem of India and France. Over the next four days, the seminar had stimulating sessions by eminent Professors from IITs, NITs and France; including panel discussions on the latest trends and challenges in power electronics, renewable energy, smart grids, and sustainable development, strengthening Indo-French collaboration for environmental sustainability.



Day1: Inauguration of Indo-French Seminar

**Brief details of the technical sessions and Panel discussions over the five-day seminar:**

**Technical Session-I (17<sup>th</sup> Nov 2025)**

- Dr. Shailendra Jain, Professor MANIT, Bhopal delivered an insightful lecture on multilevel inverter (MLI) topologies with reduced semiconductor device count.
- Dr. Adriana Aguilera Gonzalez, ESTIA, who presented the technical talk in online mode, emphasized reliability-centric design as a cornerstone for sustainable power electronics.
- Dr. Bertrand Raison, ESTIA, discussed the growing penetration of inverter-based resources such as solar PV, wind turbines, and battery energy storage systems, and their profound impact on conventional grid protection schemes.

**Panel Discussion (17<sup>th</sup> Nov 2025)**

The panel discussion was chaired and moderated by Ms. Pallavi Sachan, Associate Director, Projects & Services, Emerson. The panel explored how advancements in power electronics can address India's rapidly growing energy demand while minimizing environmental impact. Key focus areas included renewable energy integration, grid stabilization, and energy efficiency across transportation, industry,



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and building sectors. The panellists included:

- Dr. Shailendra Jain, MANIT Bhopal
- Dr. Adriana Aguilera Gonzalez, ESTIA, France
- Dr. Sanjiba Kumar Bisoyi, Associate Professor, Department of EEE, JSSATE, Noida, India
- Mr. Sivarajan Magesh, Co-Founder, Incidence Technologies Pvt. Ltd., Gurugram, India
- Dr. Sujatha K. S., Professor, Krishna College of Engineering and Technology, Coimbatore, India



Day1: Technical Session and Panel Discussion

### Technical Sessions-II (18<sup>th</sup> Nov 2025)

The second day of the Indo-French International Seminar focused on the theme “**Electrification of Transportation,**” featuring informative sessions from renowned experts in academia and industry.

#### **Morning Session**

- Dr. Gayadhar Panda, Professor, NITTTR Kolkata, presented a technical lecture on Power converters and their application in RES and EV integrated network, highlighting integration between renewable energy sources and electric vehicles.
- Dr. Debashish Chatterjee, Professor, Jadavpur University, spoke on Electric Vehicles: Modern Control Techniques and Challenges, addressing solutions for improved vehicle performance.
- Dr. Ashish Srivastava, Professor, Vishwa Karma Skill University, Haryana, delivered a lecture on Electric Vehicles: Current Trends, Opportunities and Challenges, analysing breakthroughs and existing obstacles in EV deployment.
- Mr. Sunil Kumar, Dassault Systèmes India, presented a technical talk on Transforming Creativity from Product to Experience Design, linking technological creativity to user experience. The session was engaging and visually appealing, enhanced using videos.
- A lively Q&A session followed, encouraging dialogue among participants.

#### **Panel Discussion (18<sup>th</sup> Nov 2025)**

The panel discussion was chaired and moderated by Dr. Ashish Srivastava, Professor, Vishwa Karma Skill University, Haryana. The panel explored the role of technology and innovation in making EVs more affordable and sustainable from India’s perspective, French Collaboration for Technology Transfer.



The Panellists included:

- Dr. Debashish Chaterjee, Professor, Jadavpur University, India
- Dr. Gayadhar Panda, Professor & Dean, NITTR Kolkata, India
- Dr. Md. Abul Kalam, Associate Professor, BIT Sindri, India
- Mr. Sunil Kumar, Dassault Systèmes, India
- Dr. Abhinav Saxena, J C Bose University, Faridabad, India

### ***Afternoon Session***

- Dr. Jean-Baptiste Jarin, Associate Professor, ESTIA, shared insights on “Decarbonization of mobility: the usefulness of deploying cradle-to-grave analysis in air mobility,” underscoring the importance of a comprehensive approach to sustainable transport. The session turned out to be extremely engaging, with many insightful questions being raised by the audiences. Discussions focused on advancing affordability, sustainability, innovative policy frameworks, and leveraging Indo-French collaboration for technology transfer in the EV sector. The day concluded with vibrant exchanges between academia, industry, and international experts, setting the stage for further collaborative research and innovation in sustainable transportation.



Day2: Technical Session and Panel Discussions

### **Technical Sessions-III (19<sup>th</sup> Nov 2025)**

Day three of the Indo-French International Seminar was dedicated to the **Evolving role of IoT and AI in Smart Power Systems**, with a lineup of distinguished speakers and an engaging panel discussion.

### ***Morning Session***

- Dr. Gerardo Becerra, ESTIA, France began the day with a lecture on AI and Digital Twin Applications in Power Electronics, focusing on predictive maintenance and stability enhancement using advanced technologies.
- Dr. Siva Sai Krishna Puranam, Dassault Systèmes, India presented a technical talk on Design & Simulation for EMI/EMC in Power Electronics, highlighting tools and approaches for efficient system performance.
- Dr. Samuel Jupin, ESTIA, France discussed Smart Grid & Power Systems: Advanced Control of Multilevel Power Converters for Weak Grid Applications, sharing expertise on grid modernization.



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- Dr. M. Sundaram, PSG College of Technology, Coimbatore, delivered insights on Advanced Drives and Power Converter Topology for Environmental Sustainability.

#### ***Afternoon Session***

- Mr. Siddharth Prabhakar, Dassault Systèmes, India provided an industry perspective on Developing Ventilated Seats for Automotive using an MBSE approach.

#### **Panel Discussion (19<sup>th</sup> Nov 2025)**

The afternoon panel discussion was moderated by Mr. Manoj Kumar Upadhyay, Deputy Advisor, Niti Aayog and JSSATEN Alumni 2006. The panel explored Powering the Future: How IoT and AI are Reshaping India's Smart Grid and Addressing Energy Challenges and French Collaboration for Technology Transfer. The Panellists included:

- Dr. Gerardo Becerra, ESTIA, France
- Mr. Subrahmanyam Pulipaka, CEO, National Solar Energy Federation of India
- Dr. Siva Sai Krishna Puranam, Dassault Systèmes, India
- Dr. Samuel Jupin, ESTIA, France
- Dr. M. Sundaram, PSG College of Technology, India
- Mr. Siddharth Prabhakar, Dassault Systèmes, India

#### **Key topics covered:**

- The transformative role of IoT and AI in grid efficiency and energy management
- Implementation challenges and policy frameworks for smart grid technologies
- Integrating renewables and consumer engagement to accelerate technological adoption

Day three showcased forward-thinking strategies, collaborative research, and practical innovation in smart power systems, further strengthening Indo-French academic and industry ties.



Day3: Technical Sessions and Panel Discussions



#### **Technical Sessions-IV (20<sup>th</sup> Nov 2025)**

Day four was focused on Renewable Energy Integration, covering technical sessions and a critical panel discussion on overcoming India's energy challenges.

##### ***Morning Session***

The morning sessions were dedicated to advanced power systems and grid challenges. Dr. Chandan Kumar Chanda, Professor, IEST Shibpur, Howrah presented a technical talk on Smart Grid with zero spin Energy system - perspectives and Grid integration Challenges.

In the second session, Dr. Ranjan Kumar Behera, Associate Professor, Department of EE, IIT, Patna discussed about Advanced Power Electronic Converter control for solar and wind applications. This was followed by two online presentations from France by Dr. Ignacio Hernando Gil, Ecole d'ingénieurs, ESTIA, France who discussed about Enhancing Quality of Supply in Power Distribution Networks - Risk and Reliability Implications from Distributed Energy Resources. Dr. Jerome Buire, Associate professor, Grenoble-INP, ENSE3, France, discussed about the Integration of DC Networks into AC Grids: Challenges and opportunities for Renewable energy Integration in Power Systems.

##### ***Afternoon Session***

Post Lunch, Dr. K. P. Singh Parmar, Deputy Director, NPTI, Faridabad delivered a technical session on Microgrid and Load Frequency Control.

#### **Panel Discussion (20<sup>th</sup> Nov 2025)**

The panel discussion, moderated by Mr. Anuj Kumar, Grid Control India Ltd., explored the Challenges and Solutions in India's Renewable Energy Integration, French Collaboration for Technology Transfer. The Panellists included:

- Dr. Chandan Kumar Chand, Professor, IEST Shibpur, Howrah, India
- Dr. Ranjan Kumar Behera, Associate Professor, Department of EE, IIT, Patna, India
- Dr. K. P. Singh Parmar, Deputy Director, NPTI, Faridabad, India
- Mr. Ahmed, MBSE Head, Alphabets Digital Labs, India

##### **Key topics covered:**

- Challenges that India is facing, including Grid Instability and Power Quality Issues.
- Managing the Intermittency of Renewable Sources.
- The role of Policy and Regulatory Framework.
- Leveraging French technology transfer collaboration in areas like grid modernization, energy storage, and the hydrogen economy to facilitate a cleaner energy transition for India.

Day four highlighted crucial technical solutions and strategic collaborations needed for India's transition to a sustainable energy future, particularly in the realm of renewable energy integration.



Day4: Technical Sessions and Panel Discussions

### **Technical Sessions – V (21<sup>st</sup> Nov 2025)**

Day five 21st November 2025 marked the final day of the Indo-French International Seminar, focusing on a technical presentation, discussions for future research ties, and the official Valedictory Ceremony.

#### ***Morning Session***

The morning sessions featured a specialized technical talk and an open discussion to pave the way for future collaborative efforts. Mr. Sivarajan Magesh, co-founder, Incidence Energy Technology Pvt. Ltd., India delivered a technical session on Dual Active Bridge Design for Offline Solar Inverter.

This was followed by a dedicated session for Deliberation on Possible research Collaboration between India and France.

**Valedictory Ceremony & Feedback:** The official closing ceremony included attendance by key figures, certificate distribution, and overwhelming positive feedback by the participants. The entire seminar concluded with the Valedictory and Concluding Remarks on Future Research Collaborations.

The ceremony was attended by Principal Dr. B. Manoj Kumar and French Delegates. Certificates were distributed to all the participants. The seminar received positive feedback from the participants, including international research scholars from Nigeria, highlighting the success and impact of the event.



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The Indo-French Seminar successfully concluded, having provided a robust platform for experts to share knowledge on emerging trends and innovation in power electronics for revolutionizing environmental sustainability. The event effectively strengthened ties between Indian and French institutions for future technology transfer and research collaborations.



Day5: Technical Session



Day5: Valedictory Session



### **Event Summary**

The Indo-French International Seminar on “Emerging Trends and Innovation in Power Electronics Converters for Revolutionizing Environmental Sustainability” was jointly organized by JSS Academy of Technical Education, Noida and ESTIA Institute of Technology, France, with support from CEFIPRA, held from 17th to 21st November 2025. The seminar brought together eminent academicians, industry experts, and international delegates from India and France to deliberate on sustainable power technologies.

The inaugural session featured distinguished dignitaries from AICTE, CEFIPRA, JSSATE, JSS University, and ESTIA, emphasizing the importance of Indo-French collaboration in renewable energy, electric mobility, smart grids, and environmental sustainability. Over five days, the seminar hosted multiple technical sessions and panel discussions covering advanced power electronic converters, electrification of transportation, IoT and AI in smart grids, renewable energy integration, and microgrids.

Experts from IITs, NITs, ESTIA France, Dassault Systèmes, and industry leaders shared insights on emerging challenges, policy frameworks, and technology transfer. The seminar concluded with a valedictory session highlighting future research collaborations, certificate distribution, and positive participant feedback. Overall, the event successfully strengthened international academic ties and promoted innovation toward a sustainable energy future.

### **Outcomes of the Event**

1. **Strengthened Indo-French Collaboration:** The seminar enhanced academic and research partnerships between JSS Institutions, Noida and ESTIA, France, promoting future joint projects and technology transfer. Joint MoU between JSSATE Noida and ESTIA, France is agreed upon by both the institutions.
2. **Knowledge Dissemination on Emerging Technologies:** Participants gained in-depth exposure to recent advancements in power electronics, renewable energy integration, electric vehicles, smart grids, and sustainable power systems.
3. **Industry–Academia Interaction:** Active involvement of industry experts facilitated meaningful discussions on real-world challenges, innovation, and practical implementation of sustainable energy solutions.
4. **Research and Innovation Motivation:** The technical sessions and panel discussions inspired faculty, researchers, and students to pursue advanced research in environmentally sustainable power technologies.
5. **Capacity Building and Skill Enhancement:** The event contributed to professional development by enhancing technical understanding, global perspectives, and problem-solving skills among participants.