

# 4<sup>th</sup> National Workshop on Recent Developments in Smart Grid Technologies (NWSGT-2025)

"Electric Mobility and Smart Grids"

7<sup>th</sup> and 8<sup>th</sup> March 2025



Organised by



School of Electrical & Computer Sciences

Indian Institute of Technology Bhubaneswar



Department of Electrical Engineering  
School of Electrical and Computer Sciences  
Indian Institute of Technology Bhubaneswar  
Bhubaneswar – 752050, India

About the Workshop

With the rapid advancement of smart grid technologies, the integration of electric vehicles (EVs) into existing energy networks has become a critical focus. These developments present a range of challenges, including the integration and control of microgrids, EV charging infrastructure, forecasting energy and load demand, wide-area monitoring, communication protocols, coordinated control and protection, and ensuring the stability and security of power systems for efficient and reliable operation.

This workshop aims to provide a comprehensive platform featuring expert lectures, interactive discussions, and hands-on laboratory sessions utilizing Real-Time Digital Simulators (RTDS), Renewable Energy and EV Emulators. Key topics include:

- Design and Operational Challenges in Power Electronic Converter Topologies for EV Charging
- Design and Development of Controllers for EV Chargers
- Integration and Control of EV Charging in Microgrids
- Wide-Area Monitoring and Phasor Measurement Units in EV-Integrated Microgrids
- Wireless Sensor Networks and IoT for Smart EV Grid Monitoring
- Advanced coordinated Control & Protection Systems for Hybrid AC-DC and DC Microgrids with EV Integration
- Grid quality, resiliency, stability and security with significant EV penetration
- Application of Artificial Intelligence in Optimizing EV and Smart Grid Interactions

*Join us to explore the future of sustainable transportation and its seamless integration with smart grid technologies!*

## Who can attend?

This national workshop aims at students, academicians, researchers, engineers, working professionals from Industries and R&D organizations

## Venue

School of Electrical and Computer Sciences, IIT Bhubaneswar, Argul, Khurda, Bhubaneswar-752050, Odisha, India.

## Coordinators

**Prof. S. R. Samantaray**, Professor, SECS  
**Dr. P. Chandrasekhar**, Assistant Professor, SECS

## Travel & Lodging Arrangements

Travel and lodging expenses have to be borne by the participants or their sponsoring organizations. However, a limited number of accommodations can be made available at IIT Bhubaneswar and in close by hotels on request. The registration fee includes workshop kit, working lunch, tea and snacks.

## About IIT Bhubaneswar

IIT Bhubaneswar is one of the eight new Indian Institutes of Technology established by the Ministry of Human Resource Development, Government of India under The Institutes of Technology (Amendment) Act, 2011. Indian Institute of Technology Bhubaneswar (IITBBS) was established on 22nd July, 2008. The Institute strives to offer the best engineering education with unmatched novelties in curriculum. Within a short span of incipience, IITBBS has made rapid strides towards becoming one of the elite technology institute of India spurred by sustained creation of knowledge and innovation, through high quality R&D activities and commitment to holistic education. The Institute aims to develop and pursue dynamic and flexible curricula designed to facilitate creativity and cognitive thinking among students through productive partnership with industries. Students get exposed to a wide variety of activities through societies and clubs, involving liberal arts, design, dramatics, robotics, music, dance and sports, instilling them with social awareness, a spirit of innovation, entrepreneurship and a thirst of discovery.

All academic activities of the Institute are being carried out from the picturesque permanent campus at Argul, spreading over 936 acres of land with unique

serene and pollution-free academic environment, in the state of Odisha, India. It is located on the foothills of the magnificent Barunei hills, having link with Indian freedom movements. At present, the Institute has seven schools and within a short period of time, IIT BBS has been able to build up world class infrastructure for carrying out advanced research and is equipped with state-of-the-art scientific and engineering laboratories. The Institute has a pleasant and friendly environment which facilitates a multidimensional growth of the individual in the campus.

### About Bhubaneswar



Bhubaneswar, the capital of Orissa, is also popularly known as the "Temple City of India", named after Tribhuvaneshwar, "Lord of Three Worlds" or 'Lord Lingaraj'. It is an important Hindu pilgrimage centre. The History of the city stretches back over 2000 years. The area first appears as ancient capital of Kalinga. The smart city Bhubaneswar with its modern buildings and extensive infrastructure perfectly complements its historic surroundings. With facilities to cater to every type of visitor, Bhubaneswar makes an ideal tourist destination. It is the largest city in Odisha and is a centre of economic and religious importance in Eastern India. The city is also known for its rich and varied heritage arts, crafts and dance.



Khandagiri & Udayagiri caves, Nandan Kanan zoological park, Odisha State Museum, Dhauhi Shanti Stupa, Regional Museum of Natural History, Sun Temple of Konark and Jagannath Temple of Puri along with the

Chandaka Wildlife Sanctuary are major attractions in and around Bhubaneswar. Chilka lake is an important habitat and breeding ground for both resident and migratory and aquatic birds, most notably flamingos, is 100 km away from Bhubaneswar.

### How to reach IIT BBS

IIT Bhubaneswar is well connected by rail, air and road to the rest of the country. IIT Bhubaneswar is about 8 km from Khurda Road Junction railway station and about 30 km from the Bhubaneswar railway station as well as from Biju Pattanaik International Airport.

### Registration and Application Form

Name: \_\_\_\_\_  
Designation: \_\_\_\_\_  
Organization: \_\_\_\_\_  
Mailing Address: \_\_\_\_\_  
Email: \_\_\_\_\_  
Phone: \_\_\_\_\_

Highest Educational Qualification: \_\_\_\_\_  
Brief Present Professional Activity: \_\_\_\_\_

**Fee (Excluding lodging, travel and dinner)** (Please select the appropriate box below)

- Delegates from Industry: Rs. 5,000/-
- Academicians: Rs. 4,000/-
- Students: Rs. 2,500/-

Course fee payment details:

DD No./Transaction ID: \_\_\_\_\_ Amount: ₹ \_\_\_\_\_

Dated: \_\_\_\_\_ Signature of applicant

**For candidates from Government/Private Agencies:**

Dr/Mr/Ms.....is sponsored to attend the course.

(Signature of Sponsoring Authority with date and seal)

**For Academicians/M.Tech/Ph.D. student**

The application of Dr/Mr/Ms..... is here with forwarded.

(Signature of Head of the Institute/Dept. with date and seal)

The application form for the national workshop has to be sent to the contact address and should be accompanied by registration fee in the form of crossed demand draft from any nationalized bank of India drawn in favour of "CEP, IIT Bhubaneswar" payable at Bhubaneswar or through online transfer to CEP, IIT Bhubaneswar, Canara Bank, IIT Bhubaneswar Argul Branch, A/C # 24282010001960, IFSC CNRB0017282

### Important Date

Registration closes: 21<sup>st</sup> February 2025

### Contact

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