

# IEEE Sponsored 7<sup>th</sup> International Conference on Computer Applications in Electrical Engineering - Recent Advances (CERA 2023)

**Theme: Sustainable Transportation Systems**

**Conference Date: Oct 27 - 29, 2023**

**URL: <https://cera23.iitr.ac.in>**



**Organizer: Dept. of Electrical Engineering, IIT Roorkee, INDIA**

## Call For Papers

CERA 2023 invites prospective researchers, practitioners, and students worldwide to electronically submit regular paper of their original work to be presented at the conference. All the submitted papers will be peer-reviewed. The accepted and presented papers will be considered for inclusion in IEEE Xplore (indexed by Scopus). The CERA 23 is financially sponsored by the Department of Water Resources Development and Management, IIT Roorkee and IEEE Roorkee Subsection. It is also technically co-sponsored by IEEE UP Section.

Template of the paper:

<https://www.ieee.org/conferences/publishing/templates.html>

Paper Submission Link

<https://cmt3.research.microsoft.com/CERA2023/Submission/Index>

## Important Dates

Last Date of Paper Submission  
25<sup>th</sup> July 2023 (Extended)

Notification of Paper Acceptance  
15<sup>th</sup> August 2023

Camera-Ready Paper Submission  
10<sup>th</sup> September 2023

Early Bird Registration Start Date  
30<sup>th</sup> August 2023

## Registration Fee

Attendees	Indian	International	SAARC
Industry/Corporate Sector	INR. 16500	USD 650	USD 325
Teaching/ Research Organization	INR. 12000	USD 450	USD 225
IEEE Members	INR. 10000	USD 350	USD 225
Students/Research Scholars	INR. 5500	USD 225	USD 120
IEEE Student Member	INR. 4500	USD 180	USD 85
Accompanying Person	INR. 2500	USD 100	USD 50

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## Technical Tracks

### 1. Grid Integrated Renewable Energy Systems

- Grid integration of renewable energy sources
- Smart Grid technologies and its applications
- Renewable integration, DC and AC micro-grid
- Smart Grid and smart cities
- Power network dynamics and stability studies
- Optimal power dispatch and state estimation, security analysis and control
- Power system restructuring and deregulation
- Technical issues in electricity market
- Synchronization stability and restoration of electrical network

### 4. Control Systems, Mechatronics and Robotics

- Network and cooperative control; application to physical systems
- Process control
- Robust control
- Model order reduction techniques and applications
- Linear systems theory
- Stochastic systems and estimation
- Non-linear control strategies
- Optimal and model predictive control
- Unmanned systems
- Healthcare, mobile and intelligent robotics
- Sensors, actuators and micro-nano systems
- Resilience and security for industrial applications
- Model free control design

### 7. AI/ML, IOT, Big Data Analytics

- Neural networks and fuzzy systems
- Internet of things and applications
- Data science and predictive models
- Deep learning
- Natural language processing
- Pattern recognition and machine learning techniques
- Knowledge based systems

### 2. Smart Grid Monitoring, Control and Protection

- Wide area monitoring, control & protection of power system
- Smart Grid modeling and simulation with the presence of renewable energy sources
- Design, operation and condition monitoring of power apparatus
- Monitoring of electrical networks using SCADA and synchro phasor Technology
- Wide area measurement system
- Power system protection, distribution system automation and control
- Application of WAMS for power system control, protection and state estimation
- Islanding detection for AC, DC and AC/DC microgrid system
- Flexible AC transmission system, unit commitment and load dispatch
- Optimal operation of energy sources
- Cyber security in power systems

### 5. Smart Instrumentation and Signal Processing

- Analytical and virtual instrumentation
- Biomedical sensing
- Energy harvesting for sensors
- MEMS and nano sensors
- Imaging and communication
- Medical and instrumentation uncertainty
- Biomedical instrumentation and applications
- Patient safety
- Home automation
- Image processing and applications

### 3. Power Electronics Converter Topologies, Devices, and Motor Drives

- Power devices, components, losses and gate drivers
- Power electronics converters and topologies
- Modelling, control and stability analysis of power converters
- EMI, EMC, protection, and fault tolerant operations
- AC, DC, BLDC, and Reluctance motor drives
- Torque and speed control methods
- Power converters and its control for motor drives
- Design and conditioning monitoring of electric machine
- Power converters for renewable integrations
- WBG enabled power electronics converters
- High frequency magnetics

### 6. Transportation Electrification and Energy Storage Systems

- Charging infrastructure, methodology and standards
- Power electronics for EV chargers and motor drives
- V2X and G2V operation of EVs
- Renewable integration with charging infrastructure
- Battery, ultracapacitor, and hydrogen based/hybrid energy storage systems
- Energy management systems
- Wireless power transfer
- Fuel cell power electric and hybrid electric vehicles
- Vehicle dynamics and control
- Inter-vehicle and intra-vehicle communications, infotainment
- Testing of EVs
- All-electric and More-electric aircrafts and ships propulsion systems
- Design, optimization and fault tolerant operations of Motors and converters for transportation
- Autonomous vehicle