



सीएसआईआर-केंद्रीय यांत्रिक अभियांत्रिकी अनुसंधान संस्थान

CSIR-Central Mechanical Engineering Research Institute

विज्ञान एवं प्रौद्योगिकी मंत्रालय, भारत सरकार

Ministry of Science & Technology, Government of India



**KARYASHALA**

High-end Workshop on

**कार्यशाला**



## Present and Future Trends of Electric Vehicle Technologies

07<sup>th</sup> -13<sup>th</sup> September 2022

under Abhyaas Scheme

Organized by

CSIR-Central Mechanical Engineering Research Institute  
Durgapur, West Bengal

Funded by

Science & Engineering Research Board (SERB)  
Department of Science & Technology (DST), New Delhi



### About the workshop Scheme

The 'KARYASHALA' workshop will be conducted under Accelerate Vigyan scheme intended toward "Abhyaas" mission and aimed to provide exposure, hands-on experience, and lectures to the PG and Ph.D. students, researchers primarily from universities, colleges, private academic institutions, and newly established institutes in the field of electric vehicle (EV) technologies. This event is to support & train potential students in their endeavors for pursuing a scientific career. It is very much essential to share and understand the know-how facts of the recent advances in the multi-disciplinary areas i.e. motor design, power electronics, autonomous driving, and control strategy to develop advanced EV technologies. This program provides a great space of interaction for the students, academicians, industry representatives & start-ups working in EV-related disciplines. This workshop will be conducted in offline mode in CSIR-CMERI, Durgapur. Lectures from eminent professors and experts from IITs/ NITs/ and related Industries would be delivered in the Karyashala.

### About the Institute

CSIR-Central Mechanical Engineering Research Institute (CSIR-CMERI) was founded in February 1958 and it is a premier R&D institute under the aegis of Council of Scientific & Industrial Research (CSIR), New Delhi. CSIR-CMERI has been engaged in various R&D activities and skill development programmes. Please visit CSIR-CMERI website <https://www.cmeri.res.in>

### Who can attend

Karyashala is open to students pursuing postgraduate and PhD degree from recognized Institutes, Colleges and Universities within India. Applicants pursuing PG/PhD programs in any discipline of Electrical/Electronics engineering or allied areas are eligible. Candidates who have completed PG / PhD degree will not be considered.

### Topics covered in Workshop

- Overview of advancements in electric vehicles (EV) technologies
- Advanced automotive power trains for EVs
- Advanced automotive driver assistance strategies (ADAS)
- Design, simulation and analysis of EV motor using ANSYS suite
- Challenges in manufacturing of advanced motors for EV applications
- Advanced Si-C based power converters design and analysis for EVs
- Challenges in advanced Si-C based power converters/inverters for EV drives system and other EVs systems
- Discussion on MATLAB and its recent advances for EV applications
- Hands-on implementation aspect of control algorithms on real-time controller platform like dSPACE, OPAL-RT
- Hands-on EV related technologies developed at CSIR-CMERI, Durgapur
- Exposure of various equipment and infrastructures for research on EV related technologies

### Take away from the Workshop

- Advanced power-train for EVs
- ADAS strategies like lane keeping, park assist etc
- Design, analysis and optimization of motors using ANSYS
- Practical aspects of motor manufacturing
- Practical aspects of power electronics converter design for EVs
- Application of dSPACE and OPAL-RT for testing EV related control strategies
- Hands-on motor control using MATLAB-dSPACE, OPAL-RT

### Event Coordinators

Dr Mohd Afroz Akhtar,  
Senior Scientist  
[afrozakhtar@cmeri.res.in](mailto:afrozakhtar@cmeri.res.in)

Dr Suman Saha  
Principal Scientist  
[s\\_saha@cmeri.res.in](mailto:s_saha@cmeri.res.in)

CSIR-Central Mechanical Engineering Research Institute,  
Mahatma Gandhi Avenue, Durgapur-713209.

### Guidelines

- Total numbers of seats are limited to 25. There is no registration fee.
- Please fill Google form for Registration:  
<https://forms.gle/NrCHvXzRJ6uoS5WNA>
- The applicants must **upload a Letter of authentication and No Objection Certificate** as per format (link provided in the Google form)
- Please fill the Google form along with the requested supporting documents **latest by Tuesday, 16th August 2022, 11:59 PM.**
- The applications will be screened and the candidates will be selected on merit basis.
- **Only selected candidates will be informed by email by Thursday, 18<sup>th</sup> August 2022,** therefore the candidates must **provide valid E-mail IDs** while doing the online registration.
- The selected candidates will have to **acknowledge and accept the offer for participating in the workshop through return email on or before 20<sup>th</sup> August 2022, 11:59 PM,** failing which the waitlisted candidates may be called for the workshop.
- **Accommodation with food to the selected candidates will be borne by the organizing institute.** TA for their journey by train (up to 3<sup>rd</sup> AC) to CSIR-CMERI from their hometown/ home institute, (both ways), may be admissible as per the SERB norms and rules. The necessary stationary and consumable items for the workshop will be provided by the organizing institute.
- A **certificate regarding successful completion of workshop shall be issued** to the participants.

### Organizing Team

Dr Naresh Chandra Murmu, Senior Principal Scientist  
Dr Anupam Sinha, Senior Principal Scientist  
Dr Santu Kumar Giri, Principal Scientist

CSIR-Central Mechanical Engineering Research Institute,  
Mahatma Gandhi Avenue, Durgapur-713209.

### Contact details for Event related queries

Mob: +91-7477798005; +91-9641238482

email id: [cmeri.karyashala@gmail.com](mailto:cmeri.karyashala@gmail.com)



**High-end Workshop on  
Present and Future Trends of Electric Vehicle Technologies  
(Physical Mode)**

**DECLARATION FORM**

1. Name (In Block Letters): .....
2. Date of birth: .....Gender: .....
3. Category (M.Tech/M.E/M.S./Ph.D. student): .....
4. Institution: .....
5. Department: .....
6. Mobile: .....
7. e-mail: .....
8. Specialization: .....
9. Accommodation is required (Yes/No).....
10. Official Address: .....  
.....

**Declaration:** The information provided is true to the best of my knowledge. If selected, I agree to abide by the rules and regulations of the program and shall attend the course for the entire duration.

**Name & Signature of the candidate**

**LETTER OF AUTHENTICATION and NO OBJECTION CERTIFICATE  
(from Project Supervisor/HoD/Head of Institution)**

This is to certify that Mr/Ms/Mrs\_\_\_\_\_ is a  
\_\_\_\_\_(PG/PhD) student of \_\_\_\_\_  
(name of institute/college/university) bearing enrollment/ID number\_\_\_\_\_.

His/her application is hereby nominated for attending the KARYASHALA workshop titled “**High-end Workshop on Present and Future Trends of Electric Vehicle Technologies**” under Accelerate Vigyan scheme in offline mode organized by CSIR-CMERI, Durgapur from 07th September 2022 to 13th September 2022. The Institute/university has **NO OBJECTION** in nominating the candidate’s application for attending the KARYASHALA.

Date:

Name & Signature of Project  
Supervisor/HoD/Head of Institution

Place:

(Department/ Institute Seal)