



# Malla Reddy College of Engineering & Technology

(Autonomous Institution-UGC, Govt of India)

## Department of Electrical and Electronics Engineering



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### Report of the IIC Program

1. Title of the Event: **One week faculty development program on Electric vehicles and energy storage systems: Recent trends and future prospects**
2. Quarter in which activity conducted: Q2
3. Category of the activity : Self driven activity
4. Program Type : Level 3 – Innovation and design thinking
5. Program Theme : Innovation and Startup
6. Date & Time : 27-01-2025 to 31-01-2025 & 10: 00 AM Onwards
7. Duration (in Hours) : 248 Hours
8. No of Student Participants : 24
9. No of Faculty Participants : 95
10. No of External Participants : 65
11. Expenditure incurred (if any) : Rs 100000/-
12. Mode of Delivery : Online
13. Any other Remarks : Nil

### 14. Objectives of the Activity:

- Provide faculty with an in-depth understanding of electric vehicle (EV) technologies and energy storage systems (ESS).
- Explain the fundamental principles of EV powertrains, batteries, and charging infrastructure.
- Cover recent advancements in battery technologies, including lithium-ion, solid-state, and alternative energy storage solutions.
- Identify emerging research areas in EVs, including smart charging, battery management systems, and grid integration.
- Discuss AI, IoT, and data analytics applications in EVs and energy storage.

- Encourage faculty to develop new research proposals and projects in EV technology and sustainable energy solutions.

#### **15. Benefits in terms of learning/Skill/Knowledge obtained:**

- Assist faculty in designing and updating curriculum for EV and ESS-related courses.
- Integrate multidisciplinary approaches, including mechanical, electrical, and software aspects of EV technology.
- Develop innovative teaching methods, such as project-based learning and industry case studies.
- Explore the environmental impact of EVs and energy storage systems.
- Discuss hydrogen fuel cells, renewable energy integration, and circular economy approaches in EV technology.
- Encourage entrepreneurship and startups in the EV and energy storage sectors.

#### **Web Links:**

- Video: <https://youtube.com/shorts/fJwatiNff3k>
- Instagram—

<https://www.instagram.com/p/DFQEfhGyiwi/?igsh=MXYxOGtzaW1nNjIwMA==>

#### **Poster:**

**MRCET CAMPUS**

# ONE WEEK FACULTY DEVELOPMENT PROGRAM (FDP)

on

**Electric Vehicles and Energy Storage Systems:  
Recent Trends and Future Prospects**

**27th - 31st January 2025**



ORGANIZED BY  
**DEPARTMENT OF  
ELECTRICAL AND ELECTRONICS ENGINEERING**

IN ASSOCIATION WITH  
**Electronics and ICT Academy, NIT Patna**

SUPPORTED BY  
**Ministry of Electronics and Information Technology  
(MeitY), Govt. of India**

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Dr. Ch. Bhadra Reddy

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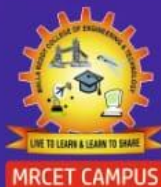
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**COORDINATOR**

Dr. M. Sharanya, Professor &  
HOD, E.E.E

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Dr. K.V. Ramana Reddy,  
Associate Professor EEE



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Affiliated to JNTUH; Approved by AICTE, NBA-Tier 1 & NAAC with A-GRADE | ISO 9001:2015

**EAMCET/PGECET/ICET CODE: MLRD**

**www.mrcet.ac.in**

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Systems: Recent Trends and Future  
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**ABOUT MRCET**

ABOUT MRCET Malla Reddy College of Engineering and Technology (Autonomous) is approved by AICTE, New Delhi and affiliated to JNTU University, Hyderabad. The MRCET College is offering B. Tech Programs in the areas of CSE, CSE-AIML, CSE-DS, CSE-CS, CSE-IOT, IT, EEE, ECE, ME, ANE and MTech Programs in CSE, ECE, ANE, ME and Master's in Business Administration (MBA). The college also has UGC Autonomous status for both Engineering and Management Programs. The college also is accredited by National Board of Accreditation (NBA- Tier-1) and NAAC with 'A' Grade and is also recognized under UGC 2f & 12(B) Status. The Institution is certified with ISO 9001:2015. The college has been ranked 'AAAA' Grade among India's Best Engineering colleges, Survey by Careers360 (Outlook Group). The College also ranked among the Top Engineering Colleges of Excellence in Telangana Competition Success Review (CSR). The department of MBA is endowed 9th Best B-School (Other than IIMs) in India.

**DEPARTMENT OF ELECTRICAL AND  
ELECTRONICS ENGINEERING**

The Department of Electrical and Electronics Engineering was started in the year 2017 with an objective of developing techno-human resources to meet the technological challenges and societal needs. The Department is offering B. Tech courses in Electrical and Electronics Engineering. The department organized several faculty development workshops in the area of Electric Vehicles, Renewable Energy, FACTS and Power Quality. The department has been organizing a Tech fest named ESPARK every year and organized international conference named ICETEE.

**OVERVIEW OF PROGRAM**

Electric vehicles (EVs) are promising technologies for achieving a sustainable transport sector in the future due to their very low to zero carbon emissions, low noise, high efficiency, and flexibility in grid operation and integration. This FDP will provide an overview of electric vehicle technologies, associated energy storage systems, and charging mechanisms. Different types of electric-drive vehicles are presented. These include battery electric vehicles, plug-in hybrid electric vehicles, hybrid electric vehicles and fuel-cell electric vehicles. The topologies for each category and the enabling technologies will be discussed. Various power train configurations, new battery technologies, and charger converter topologies will also be elaborated. Electrifying transportation facilitates a clean energy transition, diversifies the transportation sector's fuel mix, and addresses energy security concerns. In addition, this can also be seen as a viable solution to alleviate issues associated with climate change. Furthermore, charging standards, mechanisms, and relative impacts on the grid from charging vehicles are also presented. The program will also have general discussion sessions on research methodology, various research tools, basics, drafting of journals, etc.

This workshop is intended to provide opportunities for faculty, researchers, and students to upgrade their knowledge in Electric Vehicles. This Faculty Development Programme aims to impart knowledge about blockchain technology. Experts from academia and industry have been invited to deliver lectures about the different aspects of blockchain technology. This FDP will provide a basic understanding of all the above aspects of Electric Vehicles. In addition, it will provide a comprehensive understanding of the contemporary and future utilization of automobiles and entrepreneurship, which will help faculty pursue application development and research in this direction and motivate students for entrepreneurship.

**OBJECTIVES AND SCOPE**

This program would benefit faculties, students (UG, PG), PhD scholars, other researchers, and working professionals from engineering and research backgrounds. Primary objectives of the program:

- ❖ Disseminate the knowledge of Electric Vehicles and Energy Storage Systems among students, researchers, and academicians.
- ❖ Understand and discuss the current status of Electric Vehicles in India and globally.
- ❖ Discuss emerging trends and prospects for electric vehicles in different areas of engineering and technology.

**TOPICS TO BE COVERED**

This course covers the fundamentals of Electric Vehicles and the Basics of battery-driven Electric Vehicles, including their Dynamics, Motors, Power Electronics, Batteries, Charging, etc. It also covers other essential topics such as Vehicle-to-grid (V2G), EV Charging Infrastructure, Battery management, Classification of EV Chargers, Charging infrastructure, Wireless Power Transfer (WPT) technology, and Hybrid Electric drive trains. Besides in the area of energy storage technology, lithium-ion batteries, fuel-cells, supercapacitors, and integration of EVs with renewable energy sources will be discussed.

**RESOURCE PERSONS**

- ❖ Dr Rajeev Kumar Singh, EE, IIT BHU
- ❖ Dr Avnish Tripathi, ESE, IIT Delhi
- ❖ Dr. Vivek Nandan Lal, EE, IIT BHU
- ❖ Dr. Ranjan Kumar Behera, EE, IIT Patna
- ❖ Dr Sanjoy Kumar Parida, EE, IIT Patna
- ❖ Dr. Praveen Kumar, EE, IIT Guwahati
- ❖ Dr Arun Kumar Verma, EE, NIT Jaipur

**ONE-WEEK FDP INCLUDES**

6-Days Training will be taken by experts from academics (IITs, NITs & other premier institutions) and industries working in different areas of Electric Vehicles. The daily training sessions would run for tentatively 9am -6pm with 1hr lunch break each

day. The mode of training is Instructor-led live online.

- ❖ Interactive Theory & Lab Sessions for 40 hours.
- ❖ Soft copy of study materials, training videos etc.
- ❖ Certificate of program will be distributed.

**WHO CAN PARTICIPATE**

Faculty members of UGC/AICTE recognized Universities and Engineering colleges, Research scholars, students and Industry personnel; however, priority will be given to the faculty members.

**REGISTRATION FEE**

- ❖ For Indian Nationals: Rs. 500/- (Faculty/ Research Scholar/Student), Rs. 500/- (Industry)
- ❖ For Foreigners: 60 US Dollars (Faculty/Research scholar/student), 60 US Dollars (Industry)

**REGISTRATION PROCESS**

1. Registration fee will be paid through online mode. The account details for this purpose is as follows:

Account Name: NIT Patna  
Account No.: 50380476798  
IFSC Code: IDIB000B810  
Bank Name: Indian Bank

Scan the below QR code for payment using UPI apps.



2. Link for registration:  
<https://forms.gle/qcCXgbaPfkUym15J7>  
Select institute name as **Malla Reddy College of Engineering and Technology**

3. A PDF file of the online filled registration form with proof of the paid registration fee has to be emailed to [ramanareddy237@gmail.com](mailto:ramanareddy237@gmail.com)

Last date of registration: 24.01.2025

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**ORGANISING COMMITTEE**

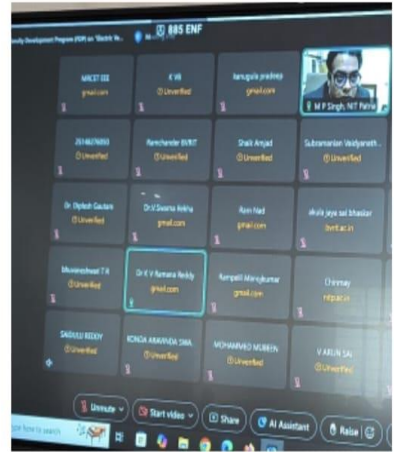
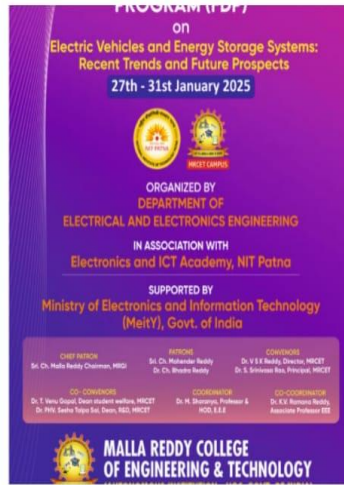
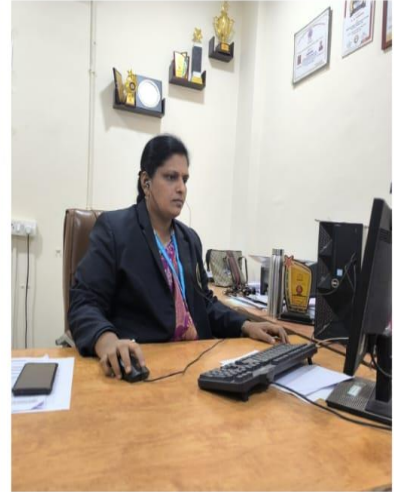
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For any queries please contact:

Dr. K. V. Ramana Reddy  
9502405595









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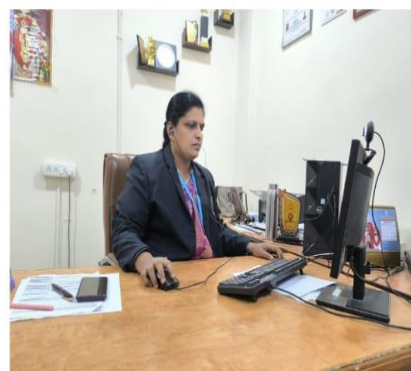
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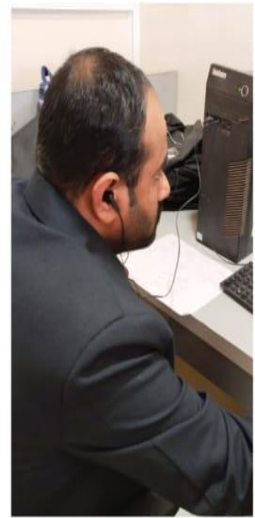
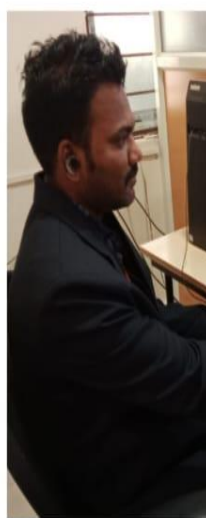
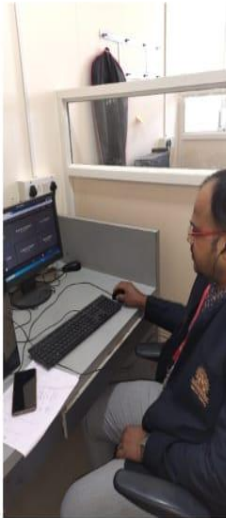
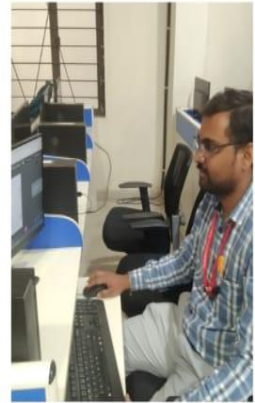
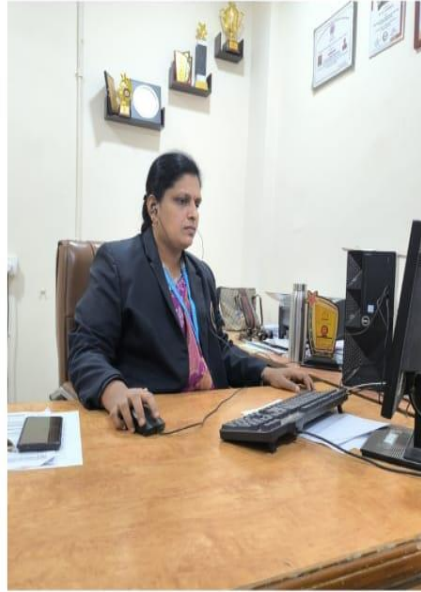
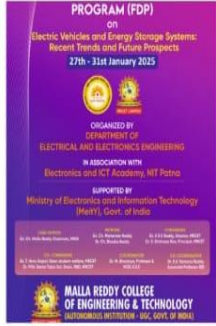
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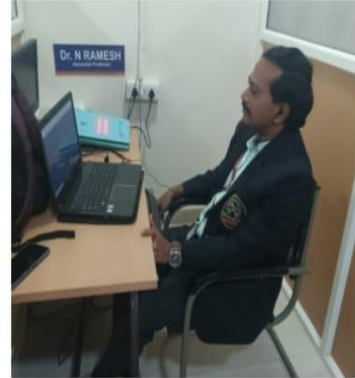
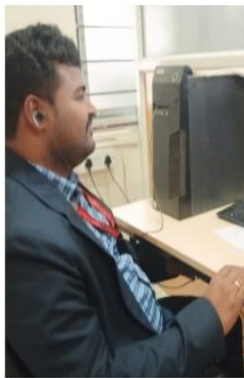
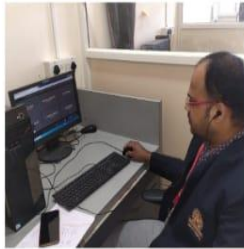
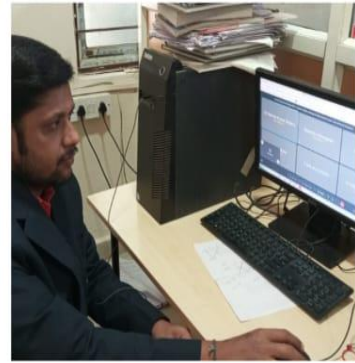
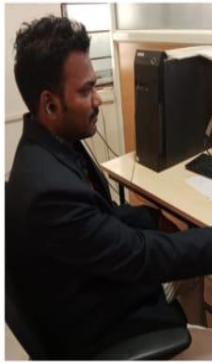
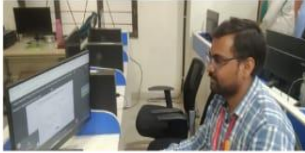
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<b>CO-CONVENORS</b> Dr. T. Ramu Reddy, Chairperson, MRCET Dr. P. S. Suresh Reddy, Vice-Chairman, MRCET	<b>COORDINATOR</b> Dr. M. Sharmila, Professor & HOD, E.E.E	<b>CO-COORDINATOR</b> Dr. V. S. Reddy, Professor & Associate Professor, EEE

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