About the Course:

This short-term course is specially designed and framed considering the recent trends in AI & ML applications in the field of Renewable Energy and Electric vehicles with inclusion of microgrids, energy management, power converters for renewable energy integration and energy storage systems into the utility grid as well as for the EV charging infrastructure. The key challenges in renewable energy integrations are the power quality issues due to intermittent nature of power generations and supply-demand management considering the uncertainties in generations and loads. Therefore, this course is designed to describe general concepts and application, control strategies and power management in green energy integration and state of art of EV charging solutions. In addition, applications of multi-level converters, MPPT for solar and wind, battery management systems, energy managements, and the power quality issues are also included for deep understanding of the power converters and their applications in renewable energy integration and in EV charging applications. Furthermore, this course has the possibility to explore the ongoing R&D ideation from the industry experts like Tata Motors, Eaton EV, Jaguar Electric, etc.

The course is applicable for students and researchers with power electronics, power systems and control system area who want to do research in fast growing and emerging renewable energy technology. Also, it will be suitable for engineering professionals from academia, R&D organizations as well as industries.

Course Coverage:

- Power Converters for RE & EV Applications
- Case study of existing EV
- AI & ML in Renewable Energy Systems
- Blockchain for financing, governing, and revenue sharing of a grid-scale BESS
- MPPT Algorithms for Solar PV and Wind Energy Systems
- Energy management in DC microgrid
- Smart Energy Management System of Fuel Cell Electric Vehicles using AI/ML
- AI & ML in Electric Vehicle (EV) Technologies
- Optimizing prosumerism with Rooftop solar and EV Integration in MGs
- Battery Management System (BMS)
- Hybrid Energy Storage System for DC Microgrid and EV
- AI in Smart Grids & Energy Management
- Electric Vehicle Charging Infrastructure

Key Speakers:

- Prof. Dipankar Debnath, IIT Kharagpur
- Prof. Manas Kumar Jena, IIT Palakkad
- Prof. Sanjoy Debbarma, NIT Meghalaya
- Prof. Vivek Mohan, NIT Calicut
- Prof. Kundan Kumar, NIT Jamshedpur
- Prof. Suman Deb, NIT Agartala
- Prof. Tapas Roy, IISc Bangalore
- Prof. Subhendu B Santra, SNU
- Prof. Arnab Ghosh, NIT Rourkela
- Prof. Manoranjan Sahoo, NIT Rourkela
- Prof. Tanmoy Roy Choudhury, NIT Rourkela

National Institute of Technology Rourkela

Short Term Course & Faculty Development Programme on

Application of AI & ML on Renewable Energy and EV Technologies (AAMREET -2026)

7th - 11th March 2026

(Hybrid Mode)

Coordinators

Prof. Tanmoy Roy Choudhury
Prof. Manoranjan Sahoo
Prof. Arnab Ghosh

Organized By

Dept. of Electrical Engineering
National Institute of Technology
Rourkela, Odisha - 769008

Technically Co-sponsored by:

IEEE ROURKELA SUBSECTION

Introduction:

The global ratification regarding the usage of sustainable energy resources such as solar, wind, biomass, fuel cell etc. for the constant growth and development of infrastructure, industrial consumers, transportations and in various fields, are propelled by the intent to restrain the fossil fuel dependency and to reduce the carbon footprint substantially. To achieve these ambitious goals, the development of green energy harvesting and its integration with conventional or smart grid is very much desirable. The integration of renewable energy or green energy or alternative energy sources into the existing conventional infrastructure leads to a sustainable and effective approach to address the issue of fossil fuel dependency. Moreover, as the goal is to reduce the fossil fuel consumption as low as possible, the urge for e-mobility is of much demand with the initiatives of green and sustainable Electric vehicles (EVs) battery charging infrastructure. The era of EV has already started and it represents a promising green solution to mitigate the environmental concerns. However, the widespread adoption of EV technology further needs monitoring, energy management, and control of the existing power system networks. By executing these steps, we are moving towards more sustainable solutions where Government is providing incentives and subsidies to encourage the adoption of such sustainable technologies.

Online Registration Form (for External):

https://forms.gle/dwuyVh3au2CZE7Ld7

Online Account Details:

Account No: 10138951784
Account Name: CONTINUING EDUCATION NIT ROURKELA
IFSC No: SBIN0002109
Branch: State Bank of India, NIT Campus Rourkela.

About the Institute:

The course will be organized by the Centre of Excellence on Renewable Energy Systems at the Department of Electrical Engineering, National Institute of Technology (NIT), Rourkela. It is one of the premier national level institutions for technical education in the country and is funded by the Government of India.

Please visit https://www.nitrkl.ac.in/

34 NIRF Overall	13 NIRF Engg.	30 NIRF Research	281-290 QS Asia

About the Department:

The department of Electrical Engineering is established with the vision to design technologies and nurture technologists for diverse and sustainable growth in electrical engineering, leading to wealth and welfare of humanity. The department offers various UG and PG programmes with the mission to develop a platform for forging students as technocrats in line with cutting-edge academic, research and modern industrial practices, and enhancing their aptness in any technical sectors across the globe.

Please visit https://website.nitrkl.ac.in/EE/

Registration Details:

Category	Online Registration Fee in INR	Offline Registration Fee in INR
Research Scholars/ PG / UG (3rd year onwards) Student	600/-	5000/- (Accommodation & Food Extra)
Faculty from Engineering Institutes	800/-	
Engineers from Industry and R&D Organizations	1500/-	

Students / staffs of NIT Rourkela need to register separately, not this google form

Important Dates:

Registration Deadline: 28th February 2026
Short-term Course Date: 7th – 11th March 2026

Contact us:

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