

Electronics & ICT Academy IIT Roorkee



An Initiative of Ministry of Electronics & Information Technology (MeitY) Government of India

A Faculty Development Program

on

Application of AI in Sustainable Power Systems

In association with

G H Raisoni College of Engineering and Management, Nagpur

July 07^{th} – July 11^{th} , 2025

Timings: 09:00 AM - 6:00 PM Register Before: July 05, 2025



Venue: Hybrid Mode at GHRCEM, Nagpur

Objectives of the Course

- To introduce fundamental AI concepts and tools relevant to power and energy systems.
- To understand how AI improves efficiency, reliability, and sustainability in modern power systems.
- To explore AI methods for renewable energy forecasting, integration, and grid stability.
- To analyze the role of AI in real-time monitoring, diagnostics, and automation of smart grids.
- To develop skills for designing AI solutions for energy optimization and demand-side management.
- To encourage interdisciplinary thinking connecting AI, electrical engineering, and sustainability.
- To provide hands-on experience with AI tools for solving real-world energy challenges.





Why this course ?

This course equips students with cutting–edge AI skills to tackle real-world energy challenges. By integrating AI with sustainable power systems, learners will drive innovations in smart grids, renewable forecasting, and energy optimization, key to achieving global sustainability goals. Ideal for those passionate about technology, environment, and future–ready energy solutions.

With growing demand for clean energy and smart infrastructure, AI is revolutionizing how power systems are managed. This course provides handson experience with advanced tools and real-world applications, preparing students for careers in energy tech, research, and policy.

Prerequisites

No experience is required, but fundamental knowledge of any programming language would be helpful.

Experts from Academia/Industry

Who Should Register?

Any Interested Faculty/PhD-Scholars PG/ & Industry Persons can register

Registration Fee

Fees: ₹ 250/- Faculty ₹ 500/- Industry/Others Note: Refund will be done in case of course cancellation only, with in 20 working days

FDP Kits & Refreshment will be provided

How to make Payment

Please make the payment first using the below link upload the payment receipt when filling out the Google registration form

https://eict.iitr.ac.in/instruction-for-payment/

EICT Course Code: EICTIITR-FDP-5H6-04

Registration Link

https://forms.gle/v61AZci4nSftEicn8



Scan QR for registration

Register before: July 05, 2025

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Course Outcomes

- Apply AI techniques to model, analyze, and optimize sustainable power systems.
- Forecast renewable energy generation using machine learning and statistical models.
- Design smart energy management systems using AI for improved operational efficiency.
- Evaluate AI algorithms for fault detection and predictive maintenance in energy networks.
- Integrate AI with IoT for real-time monitoring and control in smart grids.
- Demonstrate ability to build and implement AI-driven solutions for decentralized power systems.
- Critically assess the impact of AI-based energy solutions on sustainability and policy frameworks.

Focus Areas

- AI Techniques in Energy Systems Emphasis on machine learning, deep learning, and expert systems applied to power grids.
- Smart Grids and IoT AI-driven monitoring, automation, and predictive maintenance in smart grids using real-time data.
- Energy Efficiency and Demand Response –
 Optimizing energy consumption patterns through AI-based load prediction and control.
- Fault Detection and Predictive Maintenance Using AI for anomaly detection, condition monitoring, and maintenance scheduling in power systems.
- Sustainable Development Goals (SDGs)

Course Features

- 40 Hours of Lectures, hands-on, and Pedagogy/Industry sessions.
- Lectures from Expert Speakers, Hands-on from industry/Academia experts.
- Access to learning material and video lectures
- Certificate by E&ICT Academy IIT Roorkee

Who may benifits

- Academic Faculty and Students(UG/PG)
- Government Officials.
- Working Professionals in the Industry and Startups.
- Research Scientists and Technical Staff.

This certificate can be considered in alignment with other Quality Improvement Programs (QIP) as well as NBA and NAAC for recognition/credit.

Principal Investigator

Prof. Sanjeev Manhas ECE Department, IIT Roorkee

Course Coordinators

- Prof. Sanjeev Manhas, IIT Roorkee
- Dr. Bhupendra Kumar, GHRCEM, Nagpur

Reach Us:

- M.No.: 8112766397
- Landline No.: +91–1332286457
- Email: eict@iitr.ac.in