

IEEE IAS Summer School on AI and IoT-Based Cyber-Physical Renewable-Rich Smart Grid Systems

27 - 31 July 2026

Patron:

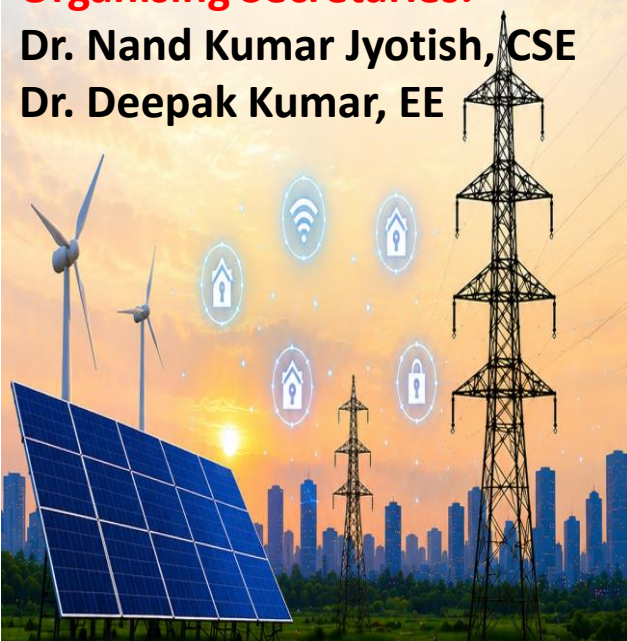
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Director, MNIT Jaipur

Coordinators

Prof. Purna Jain, EE
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Organising Secretaries:

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Transforming Future Energy Systems through

Artificial Intelligence, IoT & Smart Grid Technologies

PROGRAMME MODULES

Module 1: Fundamentals of Smart Grids & Cyber-Physical Systems

- Evolution from Conventional Grids to Smart Grids
- Architecture of Cyber-Physical Energy Systems (CPES)
- Integration of Renewable Energy Sources (Solar, Wind, Hybrid Systems)
- Smart Grid Components: Smart meters, sensors, PMUs, SCADA
- Interoperability between physical power systems and cyber layers

Module 2: AI/ML Techniques

- AI/ML Basics: Supervised, Unsupervised, Reinforcement Learning
- Core Methods: Classification, Regression, Clustering, Deep Learning Fundamentals
- Hands-on: Python-based ML on general and energy datasets

Module 3: IoT & Communication Technologies

- IoT Basics: Sensors, Devices, and Architecture
- Communication Protocols: MQTT, CoAP, IEC 61850, Edge and Cloud Computing Fundamentals
- IoT in Smart Energy Systems (Monitoring and Control)
- Hands-on: IoT-based monitoring system

Module 4: Cybersecurity & Privacy

- Basics of Cybersecurity: Threats, Vulnerabilities, and Attacks
- Common Attacks: DoS, Man-in-the-Middle, False Data Injection etc.
- Privacy and Data Protection Techniques
- Cybersecurity in Smart Energy Systems (Grid Threats and Protection)
- Hands-on: Basic security analysis and tools

Module 5: Renewable-Rich Grid Integration & Control

- Renewable Integration in Smart Energy Systems (Solar, Wind, DERs)
- Basics of Power Systems and Grid Operation
- Grid Stability: Voltage and Frequency Control
- Microgrids and Distributed Energy Resources
- Hands-on: Simulation of renewable-integrated grid systems

Programme Overview

An intensive IEEE IAS Summer School, jointly organized by the Department of Electrical Engineering and the Department of Computer Science & Engineering at Malaviya National Institute of Technology Jaipur, is being conducted in physical mode with a primary focus on graduate students, along with faculty members and research scholars from engineering and technological institutions. It is also open to working professionals from industry and organizations. The programme will focus on advanced concepts, emerging research trends, and practical applications in AI and IoT-Based Cyber-Physical Renewable-Rich Smart Grid Systems, aiming to provide hands-on experience, interdisciplinary exposure, and collaborative learning opportunities.

DISTINGUISHED SPEAKERS

- 1) Prof Akshay Rathore, National University of Singapore (NUS), Singapore
- 2) Prof. Neminath Hubballi, IIT Indore
- 3) Dr. Kanti Singh, CDAC, New Delhi
- 4) Prof. Virender Singh, IIT Bombay
- 5) Dr. Debasis Das, IIT Jodhpur
- 6) Prof. Nischal Verma, IIT Kanpur
- 7) Other experts from IITs/NITs/IISc/Prominent Foreign Universities

REGISTRATION

The programme is free for participants.
Limited Seats.

Interested participants are requested to register online at –

REGISTER NOW



<https://forms.gle/C1dzDPPFRLpVytd89>

Who Should Attend?

Graduate students, Faculty members, Professionals from Engineering, Research Scholars and Working & Technological Institutions and Industry.

ABOUT MNIT JAIPUR

Malaviya National Institute of Technology Jaipur is one of the oldest NITs, the institute has a rich heritage of sixty years producing world class engineers, managers, architects and scientists. Ranked 43rd nationally in the NIRF Ranking-2024 (Engineering), the institute offers learning opportunities for undergraduate, postgraduate students, and researchers in various domains. Having a lush green campus of over 317 acres within the heart of the pink city, close to Jaipur International Airport, the campus offers a safe and lively environment. A world-class teaching infrastructure and state-of-the-art laboratories welcome you at the campus. The institute has a vision to impart education of international standards and conduct research at the cutting edge of technology. The institute actively promotes interdisciplinary research, innovation, entrepreneurship, and industry collaboration to address real-world challenges.

ABOUT IEEE IAS

IEEE IAS: The IEEE Industry Applications Society (IAS) is a global professional society under IEEE focused on the advancement of electrical and electronic engineering in industry. It promotes the development and application of electrical systems, equipment, and controls for industrial and commercial use. IAS supports research, innovation, and knowledge sharing through conferences, publications, and technical committees. It also provides opportunities for students and professionals to network, collaborate, and enhance their technical skills.

