



One Week Short term Course

On

Digital Grid: Transforming smart energy future

16-20 February 2024

**About the Course:**

As the world is shifting towards renewables, power industry is experiencing a fundamental change in its operation. Witnessing the advantages of digital technology in other industries, there is a need of digital reinvention in power industry also. Digital Grid, integrating technologies in embedded sensing, advanced intelligence, data analytics and cloud computing, leverages customer-sited distributed energy resources to enhance grid flexibility. Digital twin technology, a vital part of digital grid, uses simulation, machine learning and reasoning along with real-time data to provide valuable insights regarding the equipment and the processes. Digital grid is envisioned to achieve a robust wide-area grid through controlled flow of energy. Digital technologies bring together distributed energy sources, electric vehicle, and energy storage devices to create smarter, greener cities, buildings, and homes. The idea of digital grid is based on utilizing the abundant energy available from renewable resources. Realisation of digital grid involves the need to establish strong regulatory and cyber security protocols to be built in the network. This short-term course is designed to prepare the future workforce for a high-data world, ensuring they have the technical knowledge necessary to be actively involved in the realization of digital grid. se will gain insights into the concept of digital grid, challenges in transforming power grid to digital grid and enabling technologies and data platforms to realize the Digital Grid vision. They will also learn about latest advances, emerging policies, and breakthrough re-search on customer DER integration.

**Topics to be covered**

- Digital Grid: concept, challenges, and opportunities
- Enabling technologies for digital grid
- Distributed energy resources integration with power grid
- Grid-connected and isolated microgrids
- Electric vehicles and energy storage
- Digital twin for a sustainable grid
- AI and machine learning applications in related areas
- Data Analytics for Grid Optimization
- Policy and Regulatory Frameworks
- Integration of advanced sensors and communication technologies

**About the Institute:**

Dr. B. R. Ambedkar National Institute of Technology Jalandhar is among the 31 NITs established by Ministry of Education (earlier MHRD), Govt. of India. The institute came into existence in the year 1987 (earlier Regional Engineering College, Jalandhar) and obtained the status "Institute of National Importance" by Act of Parliament 2007. The institute is offering B.Tech., M.Sc., M.Tech., and Ph.D. programmes in various disciplines such as Biotechnology, Chemical Engineering, Civil Engineering, Computer Science and Engineering, Electrical Engineering, Electronics and Communication Engineering, Industrial and Production Engineering Information Technology, Instrumentation and Control Engineering, Mechanical Engineering, Textile Technology, etc. NIT Jalandhar has secured the 46<sup>th</sup> NIRF rank in the engineering category in 2023.

**About the Department:**

The Department of Electrical Engineering was started in the year 2013. The department presently offers undergraduate programme B. Tech. in Electrical Engineering and research programme Ph.D. in various specialization of Electrical Engineering and allied areas. The Department aims to impart high quality education to the students and carry out fundamental and industry-oriented research work. The major research areas of the department are power system, control system, high voltage engineering renewable energy and energy storage. The department has highly qualified and competent faculty members and adequate facilities to support teaching and learning activities. The alumni of Department are well placed in the top echelons of industry & academia both in India & abroad.



# DR. B. R. AMBEDKAR NATIONAL INSTITUTE OF TECHNOLOGY JALANDHAR

## DEPARTMENT OF ELECTRICAL ENGINEERING

### One Week Short term Course On Digital Grid: Transforming smart energy future

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#### Patron

Professor Binod Kumar Kanaujia  
Director, NIT Jalandhar

#### Co-Patron

Professor Ajay Bansal  
Registrar, NIT Jalandhar

#### Convener

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#### Course Coordinator

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#### Organizing committee

Dr. Mahesh Kumar

Dr. Madan K. Das

Dr. P. Ramakrishna

Dr. Arun Rathore

Dr. Malhoth Ramesh

Dr. Smitarani Pati

Dr. Rajsi Mandal

#### Registration Fee

B. Tech Students from NITJ

Rs 200/-

B. Tech students outside NITJ

Rs 200/- + 18% GST

M.Tech Students, Research scholars, Faculties from NITJ

Rs 500/-

M.Tech Students, Research scholars, Faculties outside NITJ

Rs 500/- + 18% GST

Registration link: [https://v1.nitj.ac.in/events\\_registration/stc\\_dgtsef2024/login](https://v1.nitj.ac.in/events_registration/stc_dgtsef2024/login)

#### Note:

- Single registration is required to attend all lectures.
- Prior registration is mandatory to attend the STC.
- E-certificate will be issued to the participants on successful participation in the course.
- Webinar meeting link and other instructions will be shared via e-mail to all registered participants.
- The distinguished speakers are industry experts and faculties from the prestigious institutions of our country.

#### Contact us

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