

Faculty Development Program
on
**Issues, Opportunities, and
Challenges in Smart Grid
(IOCSG-2022)**
Nov. 09-Nov. 20, 2022



Organized by
Electrical Engineering Department
National Institute of Technology,
Kurukshetra



Sponsored by
AICTE Training and Learning
(ATAL) Academy

Preamble: Smart grids (SGs) technologies are transforming the traditional way of operation of the grid to meet the electricity demand. The smart grids have become a channel providing the way towards an environmental friendly, reliable and resilient power grid. Micro grids as an important component at the distribution level, are natural small zones for the SG due to their scalability and flexibility to deliver power to a local area. SG contains protection against the cyber-attacks, interoperability and designed for pricing in real-time. Smart grid is playing a key role for optimal utilization of the grid at minimum losses and enhanced reliability. Various characteristics of SG include optimizing the asset utilization, efficient operation, enables participation of Customers, accommodates hybrid Generation and Storage Options, enables services, and markets, provides the better power Quality. Increased renewable sources penetration, smart storage devices, electrical vehicles, electricity markets participation throughout the world will realize new opportunities for the cost-effective smart grids controls and demand side management at all scales.

These changes coupled with consumer awareness and participation of demand will lead to a new paradigm shift in energy management system analysis having the challenging issues of energy security, stability, power quality, and reliability. The SG therefore need to incorporate new networking technology, including controls, wide area measuring systems, and sensors, to monitor the grid.

In the pursuance of vision of AICTE ATAL academy, this FDP could offers multiple milestones through delivering Technical knowledge, skills and awareness on the Smart Grid of Indian and Global perspective.

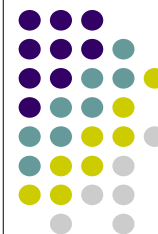
Objective of ATAL Academy: To Plan and help in imparting quality technical education in the country and to support technical intuitions in fostering research, innovation and entrepreneurship through training in various emerging Areas.

Objective of the FDP : The course aims to address the following issues related to smart grid, but not limited to them:

- Smart grid fundamentals, architecture
- Network communications requirements in terms of protocols, delay, bandwidth, and cost as essential in smart grid security development.
- Security aspects in smart grid: network security, data security, cyber security issues
- Standards, protocols, secure standards for automation and communication for maintaining cyber security.
- IoT applications in smart grid for security
- Advanced Metering Infrastructure Security,
- RES integration issues, Wide area measurements: Use of phasor measurement units (PMUs) to ensure accurate time information.
- Electrical Vehicles and energy storage
- Distribution grid management
- AC/DC, DC/DC micro grids and power electronics applications
- Energy management and demand response programs
- Implementation of **National Education Policy 2020**
- **Indian Ethos and Values**
- **Time and Stress Management**
- **Research Methodology**

Our Proposed Experts:

- Dr. Ashish Johri, Principal Consultant, SYNERGIE HR, Human process consulting, Jaipur
- Er. S. K. Soonee Advisor, Power System Operation Corporation Ltd (POSOCO)
- Dr. Ramappa Nagaraja, Managing Director, Power Research & Development Consultants Pvt. Ltd.
- Dr. Balakrishna. P, Senior Lead R&D Engineer in Smart Grid domain at GE Grid Solutions, Hyderabad Technology Center
- Prof. H.D. Charan, Chairman, National Committee Universal Human Values, AICTE, Delhi
- Dr. Bhavesh Bhalja, Associate Professor. Dept of Electrical Engg. IIT Roorkee
- Mr. Sudarshan Sahoo, Associate Project Manager, Society for Applied Value Education
- Dr. Ankush Sharma, Assoc. Prof. Department of Electrical Engineering, IIT Kanpur
- Prof. C. C. Reddy, Associate Professor, Department of Electrical Engineering, Indian Institute of Technology, Ropar
- Prof. Y. P. Verma, Professor, Department of Electrical Engineering, UIET, Punjab University, Chandigarh
- Prof. Rishi Pal Chauhan, Professor, National Institute of Technology, Kurukshetra
- Dr. Barjeev Tyagi, Professor, EED, IIT Roorkee
- Dr. V.V.S.N Murty, Manger Electrical Department, Engineers India Limited
- Dr. Nishant Kumar, Assistant Professor, EED Indian Institute of Technology Jodhpur





About AICTE Training And Learning (ATAL) Academy

AICTE is committed for development of quality technical education in the country by initiating various schemes launched by Govt. of India, Ministry of Human Resource Development e.g. SWAYAM, MOOCs, Start-up Initiatives, Prime Minister Kaushal Vikas Yojana, Sansad Adarsh Gram Yojana (SAGY), Swachh Bharat/ Unnat Bharat Abhiyan, Yoga Activities etc. Council understand that there is a need of the day to train the young generation in skill sector and having faculty & technicians to be trained in their respective disciplines. It was felt that Training with latest tools and technologies is vital to keeping an institute competitive and more productive. Training is required for increasing the knowledge and skills of students to make them more employable to acquire global competencies. It also transforms them to harmonize with society and most importantly to make them a good citizen of the country.

It is planned that AICTE Training And Learning (ATAL) Academy will conduct series of Training Program in various thrust areas in all the four academies.



About NIT Kurukshetra

National Institute of Technology, Kurukshetra, one of the 31 NITs in the country, is a premier center of learning and research in various disciplines of Engineering and Management. It trains and develops high caliber professionals to serve not only the country but also the world at large. Established in 1963 as an REC, the college was elevated to a National Institute with Deemed University status in June 2002. The Institute has made rapid strides in expanding and upgrading facilities, enhancing the quality of education and strengthening the linkage with industry. The Institute has B.Tech, M.Tech, MBA and MCA Courses in various disciplines. Institute also offers excellent facilities for advanced research in the emerging areas of Science and Technology leading to Ph.D. degree.

The institute has well qualified and dedicated faculty along with finest supporting staff, laboratories and other infrastructure. The syllabus and the curricula are constantly being updated

Organizing Team

Patron

Prof. B.V.Ramana Reddy
Director, NIT Kurukshetra

Coordinator

Dr. Ashwani Kumar, HOD & Professor, EED

Co-Coordinator

Dr. Atma Ram Gupta
Assistant Professor, EED
NIT Kurukshetra

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Registration

- **No Registration Fee**
- **The registration in the FDP will be done through online portal of ATAL academy. <https://atalacademy.aicte-india.org/signup>**
- **The selection of the participants will be based on first come first serve basis.**

Who can register?

- **Assistant Professors/Associate Professors/ Ph.D. scholars/PG students .**
- **Min/Max Limit-30/50 participants from the HEIs from the same city/within 100 km of host institute.**

Mode:-Blended/Hybrid

- **One Week Online (7-9 pm daily) for theory and**
- **Second Week (33 hours) Offline for practical/labs/ experimental learning/ Field Visit**

Certification and Course Material

Certificates shall be issued by AICTE Training and Learning (ATAL) academy to those participants who have attended the programme with minimum 80% attendance and scored minimum 70% in continuous comprehensive assessment of attendees.

National Education Policy 2020

Ministry of Human Resource Development
Government of India