

## **Nirma University**

Nirma University was established by the initiative of the NIRMA EDUCATION AND RESEARCH FOUNDATION (NERF). The University was established in the year 2003 as a statutory university under a special act passed by the Gujarat State Legislative Assembly. It is recognized by the University Grants Commission (UGC) under Section 2(f) of the UGC Act. The University is duly accredited by National Assessment and Accreditation Council (NAAC) with "A" Grade. The University is a member of Association of Indian Universities (AIU) and the Association of Commonwealth Universities (ACU). Functioning under the aegis of NERF, the University consists of Institute of Technology, Institute of Management, Institute of Pharmacy, Institute of Law, Institute of Science, Institute of Architecture and Planning, Institute of Commerce and Institute of Design. The University is identified with cutting edge research, robust academic programmes, quality teaching learning process and over-all personality development interventions of its students. The 110 acres sprawling state of art campus provides refreshing environment and stimulates intellectual growth and creativity.

## **About Institute of Technology**

Institute of Technology is a leading institute offering multidisciplinary undergraduate, postgraduate, MCA and PhD programmes in engineering. Institute is located in peaceful and sylvan surroundings, about 15 km from Ahmedabad Railway Station on Sarkhej Gandhinagar highway. The academic ambience provides full scope for development. The presence of the institute can also be felt by its alumni spread across National and Multinational organizations as well as leading Universities throughout the world. The institute provides an inspiring environment to all students to expand their intellectual dimension and recognize their hidden talents, not only in the technical field, but also in life skills.

## **Achievements**

- National Award for Engineering College having Best Overall Performance for the year 2002 by Indian Society for Technical Education (ISTE).
- National Awards for the Best Teacher in Gujarat State, Best Chapter Award, Best Student Chapter Award several times by ISTE.
- Students won National ROBOCON competition in 2002, 2003, 2006, 2008, 2011, 2014, 2015, 2021 and represented India in International meets.
- The Team Stallions of Nirma University participated in 8th Electrical Solar Vehicle Challenge 2021 and won 8 awards and a cash prize of Rs. 1,30,000/-.
- Institute has been ranked in top 20 Engineering Colleges across the country as per the survey published by various leading magazines.

## **About Electrical Engineering Department**

Department of Electrical Engineering runs U.G. and P.G. programme under the Umbrella of Institute of Technology, Nirma University. The Department offers B. Tech. Programme in Electrical Engineering and M. Tech. Programmes in Electrical Engineering with specialization in Electrical Power Systems (EPS). It also offers Ph.D. degree in the domain of Electrical Engineering. The department is enriched with latest equipment like advanced electrical machines, solar and wind energy trainer kits, DSP kits, D-Space, OPAL-RT, Power and Spectrum Analyzer, HV laboratory, etc. and Software Packages like MATLAB, SPEED, ANSYS, MAGNET, Motorsolve, NEPLAN, PSCAD, PSIM etc. The department has the state of art laboratories and all necessary facilities to enhance the quality of teaching-learning process. The department also organizes training programs, workshops, seminar and conferences for students, academicians and people from industries.



## **National Seminar on SMART Power Flow Controllers – A Necessity for Future Power Grid**

**02 April 2022**

By

**Dr Kalyan K. Sen**  
Fulbright and GIAN Scholar,  
IEEE Distinguished Lecturer &  
Chief Technology Officer,  
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## **Coordinator**

**Dr. Chintan R. Mehta**

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## **OBJECTIVE OF THE PROGRAM**

Power flow control techniques have been practiced, from using inductors, capacitors, transformers and load tap changers in the earlier days of electrical engineering to power electronics-based solutions in recent years. Even though the costs and complexities of the available solutions vary widely, the basic underlying theory of power flow control is still the same as it always has been. The power industry's pressing need for the most economical ways to transfer bulk power along a desired path may be met by building new transmission lines, which is a long and costly process. Alternately, it may be quicker and cheaper to utilize the existing transmission lines more efficiently. The key is to identify the underutilized transmission lines and harness their dormant capacity to increase the power flows to the lines' thermal limits.

The national seminar is designed to provide the basic principles of power flow control theory, an overview of the most commonly used power flow controllers, and future trends. This seminar is envisioned to offer the foundation required to perform studies of power system networks and mitigate unique power flow problems. Faculty members, researchers, students and industry personnel working in the relevant fields would be highly benefited.

## **OUTLINE OF CONTENTS**

- Electrical concepts of power flow control.
- Modeling techniques of various power flow controllers (PFCs).
- Real time simulation of various power flow controllers.
- Interaction with the speaker.

## **MODE OF CONDUCTION**

The contents will be delivered by Dr. Kalyan Sen at the Electrical Engineering Department, Institute of Technology, Nirma University, Ahmedabad.

## **IMPORTANT DATES**

**Receipt of Application: 28/03/2022**

**Confirmation of Selection: 29/03/2022 by email.**

## **FOR WHOM**

UG & PG students, research scholars, faculty members and industry personnel can participate in the national seminar.

## **COURSE REGISTRATION FEES**

Seminar registration fee is Rs. 250/- and it includes tea and working lunch. Certificate will be issued to all the participants.

## **HOW TO APPLY**

The interested members may fill the online google form from the following link.

<https://forms.gle/po5PeKojujNnNmAz9>

The participants are requested to fill in all the details available in the above link on or before 28th March 2022. **The registration fees shall be paid in cash on the day of National Seminar i.e. on April 02, 2022.**

For further details, Pl. Contact

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## **Speaker Profile**

Dr. Kalyan K. Sen received BEE, MSEE, and PhD degrees, all in Electrical Engineering, from Jadavpur University, India, Tuskegee University, USA, and Worcester Polytechnic Institute, USA, respectively. He also received an MBA from Robert Morris University, USA. He is a licensed Professional Engineer in the Commonwealth of Pennsylvania. He is a Distinguished Toastmaster who led District 13 of Toastmasters International as its Governor to be the 10th -ranking District in the world in 2007-08.

Dr. Kalyan K. Sen specializes in developing SMART power flow controllers—a functional requirements-based and cost-effective solution. He spent more than 30 years in academia and industry and became a Westinghouse Fellow Engineer. He was a keymember of the Flexible Alternating Current Transmission Systems (FACTS) development team at the Westinghouse Science & Technology Center in Pittsburgh. He contributed in all aspects (conception, simulation, design, and commissioning) of FACTS projects at Westinghouse. He has authored or co-authored more than 25 peer-reviewed publications, 8 issued patents, a book and 4 book chapters in the areas of FACTS and power electronics. He is the co-inventor of Sen Transformer. Dr. Kalyan K. Sen, a Senior Member of IEEE, has served the organization in many positions.

His other past positions included Editor of the IEEE Transactions on Power Delivery (2002 – 2007), Technical Program Chair of the 2008 PES General Meeting in Pittsburgh, Chapters and Sections Activities Track Chair of the 2008 IEEE Sections Congress in Quebec City, Canada, PES R2 Representative (2010 and 2011) and Member of the IEEE Center for Leadership Excellence (CLE) Committee (2013, 2014).