



**Lennart Söder**, born 1956, is professor in Electric Power System at KTH since 1999. Presently, he leads the research group- Integration of Renewable Energy Sources. Prof. Lennart has been engaged in research and education in the field of

power system. This includes system stability, transfer opportunities, electricity price formation, smart grid, impact of wind and solar energy, regulation of hydro power, effect of economic regulation, studies of electric vehicle, etc.

Lennart Söder has participated in several national studies and he was the government's sole investigator for the Grid Inquiry. He is active in several international collaborative projects in Sweden, Nordic area, the EU and the IEA.

Prof. Lennart Söder has (up to 2015) been the main supervisor for 32 PhD students up to licentiate and/or PhD exam. These have been in different areas such as wind power interaction, transmission expansion, harmonics, power quality, dynamics, distribution, hydro power, reliability, electric railways, electric vehicles, economic regulation, restoration etc.

### Host Faculty/Course coordinator

**Dr. Richa Negi**, is an Associate Professor at Motilal Nehru National institute of Technology, Allahabad since 1999. Her research interests includes power system, robust control and linear and non linear multi-dimensional systems.

**Dr. Nand Kishor** is a Associate Professor in the Dept. of Electrical Engineering, Motilal Nehru National Institute of Technology, Allahabad, India His research area includes AI applications in power system, Wireless sensor systems, Distributed generation with renewable resources, WAMS, Smart grid technologies.

### About MNNIT Allahabad

Motilal Nehru National Institute of Technology Allahabad, Allahabad (MNNIT) is an institute with total commitment to quality and excellence in academic pursuits. It was established as one of the seventeen Regional Engineering Colleges of India in the year 1961 as a joint enterprise of government of India and government of Uttar Pradesh.

On June 26, 2002 MNREC was transformed into National Institute of Technology and deemed university fully funded by government of India. With the enactment of National Institutes of Technology Act-2007, the institute has been granted the status of institution of national importance in 2007.

The main objective of the Institute is to produce quality engineers and Scientists in graduate and post-graduate levels in various branches of engineering and science. The institute currently offers nine B.Tech., nineteen M.Tech. degree programs, MCA, MBA, M.Sc. and M.S.W. programs and also registers candidates for the Ph.D. degree. The institute has been recognized by the government of India as one of the centers for the quality improvement programs for M.Tech. and Ph.D.

### For more information

#### Contact

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Government of India  
Ministry of Human Resource  
Development

## Call for Registration and Participation



### Course on

## Integration of High Penetration of Solar and Wind Power in Power Systems: Experiences and Challenges

**November 13 –17, 2017**

Foreign Expert (Speaker)

**Prof. Lennart Söder**

Professor in Electrical Power Systems  
KTH Royal Institute of Technology  
Söckholm, Sweden

Host Faculty & Course coordinators

Dr. Richa Negi & Dr. Nand Kishor

Organized by

Department of Electrical Engineering  
Motilal Nehru National Institute of Technology  
(MNNIT), Allahabad  
India-211004

## Course Overview

Modern power system is undergoing tremendous transformation with introduction of renewable energy sources like wind and photovoltaic (PV) into existing electric grid. While such renewable sources are good for the sustainable harness of energy, however, they alter the way the conventional power system was designed to operate. Firstly, being inherently stochastic in nature due to their dependence upon local weather conditions and secondly they do not use the conventional large synchronous generators. In a power system there are two basic requirements: 1) To continuously keep the balance between production and consumption in a reliable way and 2) Keep an acceptable voltage all over the grid. Both these requirements are still basic in a power system with high share of wind and solar power, which then means new challenges for how to handle this in an efficient way. The course will include fundamental knowledge of energy sources, mainly wind and PV for energy conversion and transmission, and distribution. The main focus of the course is to discuss integration of these renewable resources into electric power system. The content will address some of the new technologies leading to a more efficient and sustainable management of energy. It covers a broad range of energy related topics focussing on its integration, impact on power system, and experiences in some regions of European grid. The control and operational challenges towards high level of penetration will also be presented.

## Course Objectives

- To provide training and education on the subject of renewable energy based integrated systems, including basic possibilities and challenges of generating technology of wind and solar power.
- To make understand the challenges and solutions for renewable energy system integration to power system.
- Identify different challenges concerning balancing in the range from seconds to days as well as continuously keeping an acceptable voltage all over the grid.
- To make familiar with operation and control in power system with high penetration of renewable resources.

## Who can Participate ?

- Practicing Engineers, Business Executives (Tech), Research Scientists, Power Plant Operators working in Government, Semi-government, Private sector companies, and others
- Teaching Faculty members, Graduate/Post-graduate, PhD students from academic and technical institutions

## Registration/Course Fee (Non- refundable)

*The participation fee for attending the course is as follows:*

- Participants from abroad: US \$200
- Participants from Industry/ Research Organizations: Rs. 3000/-
- Participants from Academic Institutions: Rs. 2500/-
- Students (UG/PG/PhD from India): Rs.1000/-

## Mode of Payment

On registration in the course, selected candidates will be intimated through e-mail. They have to remit the required course fee to the bank/through DD as per the details given below before the deadline.

Account Name: GIAN-EE-IHPSWP 2017

Account No.: 718400301000274

Bank Name: Vijaya Bank

Branch: MNNIT, Allahabad

IFSC: VIJB0007184

MICR code: 211029004

In addition to the above fee, one-time online fee of Rs. 500/- is to be paid for registration in the GIAN web portal. (See registration process step 1 in next column)

## Accommodation

Out station participants can be provided accommodation in the Institute Guest Houses (limited accommodation on first-cum-first serve basis) inside the campus on direct payment as the Registration fee does not include lodging and boarding. The lodging (twin sharing) may be charged at rate of Rs.350/- per day (food extra) in Institute Guest House for the duration of course.

## Note:

Maximum number of Participants: 50.

(Participants will be selected on first-cum-first serve basis)

## Registration Process

Registration for any GIAN course is a two-step process.

### Step 1: Web Portal Registration

One Time Registration with the GIAN web portal of IIT Kharagpur using the following steps:

- Create login and password at: <http://www.gian.iitkgp.ac.in/GREGN/index>
- Complete the personal details and pay Rs. 500/- (non- refundable) through the online payment gateway.
- Select the Course(s) you are interested in.
- Confirm your application.

**(Individuals who have already registered to GIAN earlier do not need to repeat)**

### Step 2: Course Registration

Course registration with the course coordinator.

- Institute registration process is an offline process. The participants are required to take print out of Registration Form. The registration form is attached in your email or can be availed by email: [richa@mnnit.ac.in](mailto:richa@mnnit.ac.in)
- He/she then may proceed for the course registration by filling out the registration form and paying the registration course fee.

## Documents to be sent online

- Scanned copy of filled in "Registration Form"
- Scanned copy of "Demand Draft/receipt of NEFT"

Above documents must be sent to course coordinator via email: [richa@mnnit.ac.in](mailto:richa@mnnit.ac.in)

## Documents to be sent by post

- Original registration form.
- Demand Draft/ receipt of NEFT.

The above documents must be sent by post to:

### Dr. Richa Negi

Course Coordinator, GIAN-EE-IHPSWP 2017

Electrical Engineering Dept.

Motilal Nehru National Institute of Technology (MNNIT)

Teliyarganj, Allahabad, India-211004

## Important Dates

- Last date for receiving applications: Sept. 20, 2017
- Last date for Intimation to Participants: Sept.. 25, 2017
- Last date for course registration: Oct. 20, 2017
- Last date for receipt of Registration form by post: Oct. 30, 2017
- Course Dates: November 13-17, 2017