



**Prof. Kjetil Uhlen** is a Professor in Power Systems at the Norwegian University of Science and Technology (NTNU), Norway and a Special Adviser at STATNETT (the Norwegian TSO). He has a Master degree (1986) and PhD degree (1994) in control engineering.

As a professor at NTNU the main responsibility have been research and education related to power system stability and control.

Recent focus has been on the development and implementation of applications based on Phasor Measurement Units (PMUs) in operation and control. As special advisor at STATNETT, the main goal has been to enable the deployment of R&D results in this area into the control room environment. Kjetil Uhlen is member of IEEE since 1993 and has been co-Editor of IEEE Transactions on Power Systems (2009-2013).

Prof. Uhlen has also served in several Committees of CIGRE; Norwegian member of CIGRE Study Committee C4, "System technical performance" (2004-2012) and convener of the CIGRE Working Group WG C4.603 "Analytical techniques and tools for power balancing assessments" (2009 - 2015).

One of the important research project, wherein he lead as Project coordinator is "STRONG2rid – Smart Transmission Grid Operation and Control.



**Dr. Nand Kishor** is a Associate Professor in the Dept. of Electrical Engineering, Motilal Nehru National Institute of Technology (MNNIT), Allahabad, India. He received his Ph.D. degree from Indian Institute of Technology (IIT), Roorkee, India in 2006.

He has worked as Marie Curie Experienced Researcher (Marie Curie Fellow) at the Electrical Engineering Department, Aalto University, Finland during August 2013-October 2013. His research area includes AI applications in power system, Wireless sensor systems, Distributed generation with renewable resources, WAMS, Smart grid technologies.

Presently, he serves as Guest Editor for Special Issue-Cloud Computing in Smart Grid Operation and Management, IEEE Transactions on Industrial Informatics.

Both Prof. Kjetil Uhlen and Dr. Nand Kishor has been sanctioned joint Indo-Norway project on Operation of the Smart Grid with Wide Area Information (OperaGrid).

## 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, and was an associated college of university of Allahabad, which is the third oldest university in India.

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 w.e.f. 15.08.2007.

The institute currently offers nine B.Tech., nineteen M.Tech. degree programmes (including part-time), MCA, MBA, M.Sc. (Mathematics and Scientific Computing) and M.S.W. programmes and also registers candidates for the Ph.D. degree.

### Department of Electrical Engineering

The Electrical Engineering Department (EED) came into existence in the year 1961, with the objective to produce technical manpower of high quality and promote research and development activity.

Currently, EED offers courses leading to a Bachelor of Technology in Electrical Engineering, and Post Graduate (M. Tech.) in (i) Power Electronics, (ii) Control & Instrumentation and (iii) Power System, and PhD programs. The EED has qualified and experienced faculty in all the related fields of Electrical Engineering.

### For More Information

#### Contact:

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GIAN Local Coordinator

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## Call for Registration and Participation



Course on

## SMART POWER GRID OPERATION AND CONTROL : USE OF PMUs

October 9 – 13, 2017

Foreign Expert (Speaker)

Prof. Kjetil Uhlen

Professor

Department of Electrical Power Engineering  
Norwegian University of Science and Technology  
(NTNU), Trondheim  
Norway

Host Faculty & Course coordinator

Dr. Nand Kishor

Organized by

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

## Course Overview

The power system in general and in particular, the Indian grid system is experiencing challenges with large potential for development of renewable energy sources and increased demand in the region at larger distances and a relatively weak transmission infrastructure.

The course content will cover topics related to electric power system, its operation and security enhancement. The course content starts with a brief introduction to power system, its structure, components and general control strategies.

Throughout the world wide, in electric power grids, there are ambitious plans for installation and use of phasor measurement units (PMUs) for improved monitoring, protection and control. A common challenge is to make use of all the information that become available and develop applications that significantly benefit system operation and security.

Subsequently, in particular, the course will also address key topics of wide area monitoring and thereby its management to form a smart power grid. The issues related to enhancement of power transmission system security will be addressed.

The lecture will also give an overview of recent and ongoing activities at NTNU and STATNETT within wide area monitoring and control.

## Course Objectives

The prime objectives of the course would be:

- To deepen knowledge of modern power system dynamics and its analytical approach.
- To make understand about system dynamics and how these are influenced by control strategies.
- To make familiar in application of PMUs for smart grid through real-time monitoring tools and live projects.
- To enrich understanding for monitoring, control and protection using PMUs
- To make understanding of algorithms for online monitoring of power system stability,

## Grading and Certification

On completion of course and final assessment, grade certificate will be provided to participants on the basis of performance.

## 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
- Industry/ Research Organizations: Rs. 3000/-
- 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-SPGOC 2017**

Account No.: **7184 0030 1000 272**

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: [nandkishor@mnnit.ac.in](mailto:nandkishor@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: [nandkishor@mnnit.ac.in](mailto:nandkishor@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. Nand Kishor,

Course Coordinator, GIAN-EE-SPGOC 2017

Electrical Engineering Dept.

Motilal Nehru National Institute of Technology (MNNIT)

Teliyarganj, Allahabad-211004, India-211004

## Important Dates

- Last date for receiving applications: Sept. 1, 2017
- Last date for Intimation to Participants: Sept. 5, 2017
- Last for course registration: Sept. 15, 2017
- Last date for receipt of Registration form by post: Sept. 20, 2017
- Course Dates: October 9-13, 2017