Stability modeling and analysis of power system including large renewable energy sources

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Overview

Electric power network is by far the largest machine built on the Earth. The requirement for round the clock electricity supply can only be met through involved operation, control and co-ordination strategy. This course will present mathematical model, analysis and design of important components in the system for dynamic stabilization and control.

The course will cover modeling of synchronous machines, prime-movers, governors, aspects of excitation systems and voltage control for large fossil fueled power plants. It will cover modelling of power network for system stability study and analysis including modelling of loads. The modelling of wind turbine generators of both fixed speed and variable speed types along with their control for grid integration will be covered. Finally stability analysis of power system involving both synchronous and wind driven generators will be presented for small and large inter connected system through example and illustrations.

Course participants will learn these topics through lectures and hands-on experiments. Also case studies and assignments will be shared to stimulate research motivation of participants.

Objectives:-
The objective is to provide good grasp on model, system dynamic studies control and analysis. They will have developed the skill to understand and plan against any undesirable system outage both at planning and operation stage.

Modules	**A: Synchronous generation modelling for stability studies: 30.12.2015 – 03.01.2016** **B: Wind generation stability modelling and analysis : 04.01.2016 – 08.01.2016** **Number of participants for the course will be limited to fifty.**
You Should Attend If…	▪ you are an electrical engineer or research scientist interested in modeling and stability analysis of conventional and wind turbine based power generating stations. ▪ you are a student or faculty from academic institution interested ito do research in the field of power system stability and control in presence of wind turbine generators.
Fees	The participation fees for taking the course is as follows: **Participants from abroad : US $500** **Course fee for non-students (i.e. other academic, industry participants etc.): Rs. 2000/-** **Course fee for students: Rs. 1500/-** **The course fee will be made half for SC/ST students.** The above fees include all instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges. The individual course participants will have to borne the charges for their food, transport and accommodation separately. The external participants will be provided accommodation on payment basis.

The Faculty

Prof. Bikash Pal is a faculty of Electrical and Electronics Engineering at Imperial College London, United Kingdom. His research interests include designing robust control techniques to guard against power system stability problem, power transmission control and state estimation.

Dr. Aniruddha Bhattacharya is an Assistant Professor of National Institute of Technology, Agartala. His areas of interest include power system operation & economics, power system reliability analysis, economic operation of micro-grid, application of soft computing applications to power system optimization problems.

Travel Information: The Institute is 4 km off Jirania on Assam-Agartala Highway (NH-44) and about 20 km away from Agartala. Agartala is well connected by Rail, Road and Air. Pre-Paid Taxi and auto service is available from Agartala Airport to the Institute. Jirania Railway station is 2 Km away from the Institute.

Registration: Interested participants will have to first register with the GIAN website http://www.gian.iitkgp.ac.in for a one-time non refundable registration fee of Rs. 500 which will enable them to enroll for any number of courses being offered. Subsequent registration will have to be done with the host institution by paying the requisite fees. Details of registration procedure (host Institute's part) are available in the website of host institution.

Course Coordinator

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http://www.nita.ac.in/NITAmain/GIAN/GIAN.html