

Integration of Electronically-Coupled Energy Resources and Apparatus in Electrical Power Systems

Overview

Modern power electronics devices and circuits are now in widespread use, across an ever-increasing number of power conversion and power control applications. The purpose of this course is to give a detailed introduction to the key aspects of power electronic converters and design. This course discusses the applications of power electronics for the smart grid focusing on the flexible AC transmission system (FACTS) devices, HVDC transmission, series and shunt compensation, and phase shifters. In this course, Custom Power Devices (CPD) for improving the power quality in the distribution grid will also be discussed. This course will also discuss modeling and control of such devices.

The course also gives an overview of the electrical power system and power systems analysis, in the context of power electronics applications and their interaction with the power network. This course will provide a strong foundation in power electronics for systems engineers and project engineers, including a strong laboratory component. In this unit, students develop an in-depth understanding of the theory and applications in power systems of High Voltage Direct Current (HVDC) transmission and Flexible AC Transmission Systems (FACTS) devices and Custom Power Devices (CPD).

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.

Modules	A: Power Electronic Converters B: HVDC transmission, FACTS Controllers and Electronically-Coupled Resources C: VSC-HVDC and LCC-HVDC D: AC and DC Microgrids Dates: 19-23 February, 2018. Venue: IIT Bhubaneswar Deadline for registration: 5 February 2018. Limited number of seats are available for the course.
You Should Attend If...	<ul style="list-style-type: none"> ▪ You are an executive, engineer and/or researcher from manufacturing, service and government organizations including R&D laboratories working in energy apparatus for electrical power systems. ▪ You are a student (BTech/MSc/MTech/PhD) or a faculty in academic institutions interested in learning how to design and integrate electronically coupled energy resources for microgrids
Fees	<p>The participation fees for taking the course is as follows: Participants from abroad: US \$200 Industry/ Research Organizations: Rs 10000 Academic Institutions (faculty): Rs 4000 Academic Institutions (students): Rs 1500</p> <p>The above fee includes all instructional materials, computer use for tutorials and internet facility at the host institute during the course. The participants will have to make their own arrangements for their travel, accommodation and food. However, accommodation can be arranged for a few participants on first-cum-first-serve basis against payment. For any queries regarding registration or other practical information, please contact the course coordinator.</p>

The Faculty



Prof. Reza Iravani is a professor in University of Toronto, Canada. He is the founding director of the Centre for Applied Power Electronics (CAPE) in the University of Toronto. His research interests include control and operation of High Voltage DC (HVDC) grids, integration of renewable/alternative energy resources and smart grid technologies/concepts in distribution systems and HVDC-AC transmission systems, and microgrids. He is a fellow of the IEEE and the Editor-in-Chief of the IEEE Transactions on Power Delivery. He is also the chair of the IEEE Power Engineering Society on T&D Subcommittee on General Systems. Professor Iravani is one of the pioneers in the development of the control and the operational concepts of microgrids and active distribution systems.



Dr. Srinivas Bhaskar Karanki is an assistant professor of Indian Institute of Technology Bhubaneswar. His research interests are in power quality, energy storage integration to grid, DC-DC converters for renewable energy sources, and power electronics applications in power systems. He has received POSOCO Power System Award (PPSA 2013) for the best PhD Thesis by power system operation corporation and foundation for innovation and technology transfer, New Delhi, India.



Dr. D. Ghosh is an assistant professor of Indian Institute of Technology Bhubaneswar. Her research interests include sensors design, array signal processing, theoretical and computational electromagnetics and optimization and numerical methods. She is a senior member of IEEE and a fellow of IETE.

Course Coordinators

Dr. D. Ghosh

Phone: 916747135714

E-mail: dghosh@iitbbs.ac.in

Dr. S. B. Karanki

E-mail: skaranki@iitbbs.ac.in

.....
<http://www.gjan.iitkgp.ac.in/GREGN>