

GLOBAL INITIATIVE FOR ACADEMIC NETWORKS



National Coordinating Institute
INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR

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POWER ELECTRONICS FOR RENEWABLE ENERGY SYSTEMS

Overview

Electricity generation from renewable energy sources (RES) has gained immense interest in recent past owing to concern over several factors viz. dwindling reserve of fossil fuels, global warming, escalating energy demand, etc. However, the electrical output from the RES is not in a form which can be directly fed to load or to the electric grid. To address this issue, a suitable interface must be formed between the RES and load/ grid (or both). Power electronic converter(s) plays the vital role in forming the aforesaid interface. To study and design basic as well as state-of-art power electronic converters and their associated control strategies for application in renewable energy systems is the prime focus of this course. The content of the course being relevant to today's world will be extremely useful from academic as well as industry perspective.

The participants are expected to accrue following benefits after successful completion of this course:

- Learn basics of power electronics and its application to renewable energy systems
- Exposure to simulation of power electronic interface for solar photovoltaic (PV) system. This includes but not limited to: maximum power point tracking, solar based stand-alone/off-grid system, grid-integration of solar PV.
- Tutorial sessions focused on problem solving related to power electronics application to renewable energy systems
- Learn how to design a practical power electronic converter

Modules

- December 18 –December 22, 2017 (5 days)
- 11 hrs lectures, 3 hrs tutorials and 6 hrs simulations
- Venue: IIT Kharagpur
- Number of participants for the course will be limited to fifty**

Who Should Attend

- If you are interested in designing power electronic converter for renewable energy systems and belong to any of the following categories:
- An executive, engineer or research scientist from manufacturing, service and government organizations including R&D laboratories.
- A student, faculty member, technical staff or researcher from academic institutions.

Fees

The participation fees for taking the course is as follows:

Participants from abroad : **US \$500**

Participants from India:

- o **Industry/ Research Organizations:** **₹10,000**
- o **Full Time Students:** **Nil**
- o **Others from Academic Institutions:** **₹8,000**

The above fee include all instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges, 24 hour internet facility.

Limited shared accommodation in the guest houses and hostels is available on payment basis. They may be allotted to first-applied-first-serve basis. Travelling, boarding and lodging expenses should be borne by the participants.

The Faculty



Prof. Jih-Sheng (Jason) Lai is James S. Tucker Endowed Professor and Director of Future Energy Electronics Center (FEEC), Virginia Polytechnic Institute and State University, USA. Dr. Lai is an IEEE Fellow. He published more than 400 refereed technical papers and 2 books. He received 25 U.S. patents in the area of high power electronics and their applications. His work brought him several distinctive awards including a Technical Achievement Award in Lockheed Martin Award Night, two Journal Prize Paper Awards, 12 Best Paper Awards from IEEE conferences, 2016 IEEE IAS Gerald Kliman Innovator Award, and Virginia Tech Dean's Award on Research Excellence. His student teams won the Top Three Finalist in Google Little Box Challenge in 2016, First Prize Award in Texas Instruments' Analog Design Competition in 2011 and the Grand Prize Award from International Future Energy Challenge (IFEC) on power electronics design competition in 2013. His research interest includes application of power electronics technologies for solar and wind energy generation, hybrid electric vehicles.

Please visit the following link to know more about Prof. Lai and his group:

<https://ece.vt.edu/people/profile/lai>

<http://feec.ece.vt.edu>



Dr. Dipankar Debnath is an Assistant Professor in Electrical Engineering department of Indian Institute of Technology, Kharagpur. His research interest includes Power electronic converter design for various applications especially solar photovoltaics, electric vehicle, and grid-integration.

Please visit the following link to know more about Dr. Debnath:

<http://www.iitkgp.ac.in/departments/EE/faculty/ee-ddeb Nath>

Course Co-ordinator

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Create login and password at <http://www.gian.iitkgp.ac.in/GREGN/index>

1. **Login and complete the registration form.**
2. **Select courses**
3. **Confirm your application and payment information.**
4. **Pay Rs.500 (non-refundable) through online payment gateway.**

The course coordinators will go through your application and confirm your selection as a participant on or before:

05 Dec, 2017

(Since seats are limited selection will be done on first-applied-first-selected basis)

Once you are selected you will be informed and requested to pay the full fees through online payment gateway service.

Last date for paying full fee:

10 Dec, 2017

** For any assistance or query please send a mail to Dr. Debnath



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