

Advances in Power Electronics & Renewable Energy Sources

Overview

In today's world, the scenario of energy demand is increasing exponentially. This increase leads to the concerns of energy crisis as fossil fuels have limited reservoirs. The other concern is of climate change threats. Renewable energy sources are seen as a solution to these concerns. The main renewable energy sources are solar, wind, fuel cell etc. Power electronics plays a major role in energy conversion from renewable energy sources to electrical energy. The integration of power electronics and renewable energy sources leads to an energy conversion system to meet the energy demand. This renewable energy based generation is of various types like stand alone, grid connected, hybrid etc. This area is very demanding and challenging for industrialists, researchers and governments. Therefore, it is important to interact with the internationally recognized academicians to meet the challenges.


In this course, the spectrum of new energy sources, requirements of power electronics, working of microgrids, grid interfacing of converters, power management for automation, Electric vehicles, performance evaluation, use in smart cities and challenges will be discussed. This is a research cum higher undergraduate level course and is interdisciplinary in nature. Course participants will learn these topics through expert lectures and hands on tutorial.

Objective of the course includes (a) Exposing participants to the advancements in Renewable energy sources and its conversion process (b) Providing background of power electronics and its control requirement for Renewable energy sources (c) Providing exposure to the various types of renewable energy systems like grid connected, microgrid (d) Enhancing the capability of researchers to develop and solve the existing issues and to work on upcoming areas in this field.

Modules/ Brief Syllabus	A: Duration : Feb 06 – 10, 2017 B: Venue : Department of Electrical Engineering Jamia Millia Islamia, New Delhi No. of Participants for the course will be limited to fifty.
You should attend If	<ul style="list-style-type: none">- You are a PG, PhD student in the area of Power Electronics, Power System, Renewable Energy Sources.- You are a Faculty Member, Researcher working/interested in the area of Power Electronics, Power System and Renewable Energy Sources.- You are an executive, engineer and researcher from industry and government organizations, including R&D laboratories interested work in the area of Power Electronics and Renewable Energy Sources.
No of Credit	- 01

<p style="text-align: center;">Fees</p>	<p>The participation fees for taking the course is as follows:</p> <p>Participants from abroad: US \$500</p> <p>Industry/Research Organisations: INR. 6000/-</p> <p>Academic Institutions:</p> <p>Faculty members: Rs. 3000/-</p> <p>Masters/PhD Students: Rs. 1500/-</p> <p>The above fee is towards participation in the course, the course material, computer use for tutorial and assignment, 24 hour free internet facility. The participants will be provided accommodation on payment basis, subject to the availability.</p> <p>Course Fees Payment: The DD should be prepared in favour of “Registrar, Jamia Millia Islamia”, payable at New Delhi and submit to the Advance Power Electronics Research Lab, Room no. 127, Deptt of Electrical Engineering, JMI</p>
<p style="text-align: center;">Registration</p>	<p>The participants should register on the following link:</p> <p>http://www.gian.iitkgp.ac.in/GREGN/index</p>

The Faculty

	<p>Professor Akhtar Kalam has been at Victoria University, Melbourne since 1985 and a former Deputy Dean of the Faculty of Health, Engineering and Science for 7 years. He is currently the Head of Engineering. He is also the current Chair of the Academic Board and lectures in the Masters by coursework program in the Engineering Institute of Technology, Perth, Australia. Further he has Distinguished Professorship position at the University of New South Wales, Sydney, Australia and 5 Malaysian universities. He has wide experience in educational institutions and industry across four continents. He received his B.Sc. and B.Sc. Engineering from Calcutta University and Aligarh Muslim University, India. He completed his MS and Ph.D. at the</p>
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University of Oklahoma, USA and the University of Bath, UK. He has worked with Ingersoll Rand and other electrical manufacturers. He has held teaching appointments at the University of Technology, Baghdad, Iraq and Capricornia Institute of Advanced Education, Rockhampton, Queensland. He is regularly invited to deliver lectures, work on industrial projects and examine external thesis overseas. His major areas of interests are power system analysis, communication, control, protection, renewable energy, smart grid, IEC61850 implementation and cogeneration systems. He has been actively engaged in the teaching of Energy Systems to undergraduates, postgraduates and providing professional courses to the industry both in Australia and overseas. He regularly offers Continuing Professional Development and Master Class courses on Power System Protection, Renewable Energy, IEC61850, Cogeneration & Gas Turbine Operation and PBL in engineering education to practicing engineers, the Energy Supply Association of Australia (ESAA) and Australian Power Institute (API). He also runs postgraduate distance education programme on Power System Protection for the ESAA. He has conducted research, provided industrial consultancy and published over five hundred publications on his area of expertise and written over 29 books in the area. More than 35 students have graduated under his supervision and he is an external examiner of many external doctoral students in Australia and overseas. He provides consultancy for major electrical utilities, manufacturers and other industry bodies in his field of expertise. **Professor Kalam is a Fellow of EA, IET, AIE, a member of IEEE and CIGRE AP B5.**



Dr. Ahteshamul Haque is working as Assistant Professor in the Department of Electrical Engineering, Jamia Millia Islamia (A Central University) New Delhi. His area of research is Power Electronics and its application in Renewable Energy, drives, electric control system for artificial lighting, Power quality improvements, smart grids, wireless power transfer, hybrid vehicles, electric traction, smart cities etc. He did

Course Coordinator

Dr. Ahteshamul Haque
(Senior Member IEEE)

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B.Tech in Electrical Engineering from AMU and M.Tech from IIT-Delhi. He completed his PhD from Jamia Millia Islamia in the area of power electronics and renewable energy. Prior to Jamia Millia Islamia, he was working in the Power Electronics R&D units of world reputed Multi-National Companies. His inventions are patented and awarded in USA and Europe. He has published and presented his research papers in many International conferences and peer reviewed Journals. Since inception of The Electrical Engineering Department, he received the maximum R&D grant in one project in individual capacity from Ministry of New and Renewable Energy (MNRE) Govt of India. He has established an Advance Power Electronics Research Lab. Dr. Haque has installed a 1kW solar PV system and the load of advance Power Electronics Research Lab is getting power from this installation. He is working to develop grid connected inverters. He filed patents with B.Tech and M.Tech students working under his supervision. He designed course syllabus of UG and PG levels. Further details can be found on

http://jmi.ac.in/electrical/faculty-members/Dr_Ahteshamul_Haque-3339

GIAN SCHEDULE

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INAUGURAL CEREMONY: Feb 6, 2016 9:00AM - 10:00 AM

Lecture No.	Date	Time	Topics to be covered
1	Feb 6	10:30 A.M. to 11:30 A.M.	An information Spectrum Approach to new Energy
2	Feb 6	11:40 A.M. to 12:40 P.M.	Power Electronics, its control and its role in Renewable energy conversion system
3	Feb 7	9:30 A.M. to 10:30 AM	Microgrids and its working
4	Feb 7	10:45 A.M. to 11:45 AM	Stability analysis of Microgrids
5	Feb 7	12:00 Noon to 01:00 P.M.	Microgrids and its Role in Smart Buildings and Smart Cites
6	Feb 8	09:30 A.M. to 10:30 A.M.	Smart Grid and Power Electronics
7	Feb 8	10:45 A.M. to 12:00 Noon.	DC and Uninterrupted AC Power Supplied for Automation Application.
8	Feb 8	12:15 P.M. to 1.15 PM	Electric Vehicles: Challenges and Opportunities.
9	Feb 9	9:30 to 10:30 AM	Fundamentals of Grid connected system
10	Feb 9	10:45 to 11:45 AM	Control and analysis for grid connected solar inverter
11	Feb 9	12:00 Noon to 1.00 PM	South Australia Blackout of 28 September 2016 – was the cause due to massive use of Renewables?
12	Feb 10	10:00 A.M. to 12:00 Noon	Examination for PerformanceEvaluation
13	Feb 10	02:00 P.M. to 04:00 P.M.	VALEDICTORY CEREMONY