

❖ Selection and Mode of Payment:

Selected candidates will be intimated through E-Mail. They have to remit the necessary course fee to the Bank as per the details given below.

Outstation participants requiring accommodation and boarding facilities have to pay Rs. 4,000/- in addition to the course fee.

Account Name	GIAN NITW
Account No	62447453600
Bank	State Bank of India
Branch	REC Warangal (NIT Campus)
Branch Code	20149
IFSC Code	SBIN0020149
MICR Code	506004011
SWIFT Code	SBININBB018

Candidates registering early will be given preference in short listing process. For any queries regarding registration of the course, please contact the Course Coordinators:

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❖ About GIAN Course:

Ministry of Human Resource Development (MHRD), Government of India (GoI) has launched an innovative program titled “Global Initiative of Academic Networks (GIAN)” in higher Education, in order to garner the best international experience. As part of this, internationally renowned Academicians and Scientists are invited to augment the Country’s academic resources, accelerate the pace of quality reforms and elevate India’s scientific and technological capacity to global excellence.

❖ About the Institute and Warangal:

National Institute of Technology, Warangal (NITW) formerly known as RECW is the first among seventeen RECs set up in 1959. Over the years, the Institute has established itself as a premier Institution in imparting technical education of a very high standard, leading to B.Tech, M.Tech and Ph.D. programmes in various specializations of Science and Engineering streams. Warangal is known for its rich historical and cultural heritage. It is situated at a distance of 140 km from Hyderabad. Warangal is well connected by rail and road. National Institute of Technology, Warangal campus is 3 km away from Kazipet railway station and 12 km away from Warangal railway station.

❖ About the Department:

The Department of Electrical Engineering is one of the oldest departments of the National Institute of Technology, Warangal (NITW). Established as one of the major departments of the Institute, since its inception in 1959, the Department of Electrical Engineering has been actively engaged in teaching and research in diverse fields of Electrical Engineering. With excellent faculty, the Department of Electrical Engineering offers undergraduate (B.Tech) and graduate (M.Tech) in Power Electronics & Drives and Power Systems and research (Ph.D) programmes. All B.Tech and M.Tech programs are accredited for five years in 2014-15 by NBA as per Washington Accord.



Five Days GIAN Course on

**POWER CONDITIONING FOR PV
SYSTEMS**

January 01-05, 2018

Call for Registration and Participation

International Faculty

Prof. Jih-Sheng (Jason) Lai, Ph.D.

James S. Tucker Professor

**Virginia Polytechnic Institute and State
University**

**Director, Future Energy Electronics Center
220 Inventive Lane (0356)
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Course Coordinators

Dr. Sachin Jain

Dr. A. Kirubakaran

Department of Electrical Engineering

National Institute of Technology

Warangal

506 004, Telangana, India

❖ Overview of the Course:

Today renewable energy is looked upon as a viable alternative for electric energy solution instead of conventional source of power. Ecology and environmental constraints further restricts increase power generation using oil, natural gas or coal used by conventional source. So, non-conventional sources i.e. renewable sources are becoming popular and seem to have high potential solution for the sharp increasing demand for the electrical energy.

Among renewable sources PV seems to be popular and attractive alternative. This can be attributed to requirement of abundant and free source of energy of the Sun, zero pollution, low maintenance etc. However, non-linear i-v characteristics of the PV array and dc output power from the PV source restrict its application and usage. Thus, raw power generated in the PV source needs to be conditioned into the required form for its usage. Thus, there is a need of Power Conditioning Units (PCU) which will process PV power for their usage or application.

Further, these PCU's or power converters are also necessary for dealing with non-linear i-v characteristics of the PV array. In the given lecture series various aspects of power converters will be covered. It will start with power semi-conductor devices where details of various advance devices like GaN, SiC, COOLMOS, etc. will be discussed. Selection criteria for devices for a particular application will also be covered. Apart from this course will also have details of various converters and inverters used with respect to PV systems.

❖ Course Objectives:

The primary objective of the course is to provide participants with a wide exposure and enhancing their capability in the field of renewable energy sources, with a special focus on the following aspects:

- I. Exposing participants to the fundamentals Power Electronics in terms of selection of devices.
- II. Advanced power converters and inverters used in the PV systems. Requirement of the converters and inverters processing power generated in PV source.
- III. Providing exposure to PWM techniques and their analysis used during the design of power converters.

- IV. Expose to the participants the basic analysis of PV fed converters and concepts of MPPT.
- V. Exposure to simulation of power conditioners for PV system with practical demonstration.

❖ International Faculty:

Prof. Jih-Sheng (Jason) Lai received M.S. and Ph.D. degrees in electrical engineering from the University of Tennessee, Knoxville, in 1985 and 1989. In 1989, he joined the Electric Power Research Institute (EPRI) Power Electronics Applications Center (PEAC), where he managed EPRI-sponsored power electronics research projects. From 1993, he worked with the Oak Ridge National Laboratory as the Power Electronics Lead Scientist, where he initiated a high power electronics program and developed several novel high power converters including multilevel converters and auxiliary resonant snubber based soft-switching inverters. He joined Virginia Tech in 1996. Currently he is James. S. Tucker Endowed Professor and Director of Future Energy Electronics Center (FEEC). He published more than 400 refereed technical papers and 2 books. He received 24 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, nine Best Paper Awards from IEEE and international conferences, and Virginia Tech Dean's Award on Research Excellence. His student teams won the 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. Dr. Lai is an IEEE Fellow and the recipient of IEEE IAS Gerald Kliman Innovative Award. He was the founding chair of the 2001 IEEE Future Energy Challenge for Inverter Competition, General Chairs of IEEE Workshop on Computers in Power Electronics (COMPEL 2000), IEEE Applied Power Electronics Conference and Exposition (APEC 2005), 2008 NSF Workshop on Power Electronics for Alternate Energy and Distributed Generation. He also served as the Steering Committee Chair for APEC 2006 and IEEE International Future Energy Challenge in 2011 and 2013.

❖ Who can participate?

This program is open to the Faculty, Post graduate students, Engineers and researchers from manufacturing, service and government organizations including R&D laboratories interested in developing power conditioners for alternate energy sources.

❖ How to Register?

Stage-1: Web Portal Registration:

Visit <http://www.gian.iitkgp.ac.in/GREGN/index> and create login User ID and Password. Fill up the blank registration form and do web registration by paying Rs. 500/- online through Net Banking / Debit / Credit card. This provides the user with life time registration to enroll in any number of GIAN courses offered.

Stage-2: Course Registration:

Login to the GIAN portal with the user ID and Password already created in Step 1. Click on Course Registration option at the top of Registration Form. Select the Course titled "**POWER CONDITIONING FOR PV SYSTEMS**" from the list and click on Save option. Confirm your registration by clicking on Confirm Course.

❖ Registration Fee:

Faculty	Rs. 2,000/-
Participants from Industry / Research Organizations	Rs. 4,000/-
Students & Scholars	Rs. 1,000/-
Participants from abroad	
Students	US \$ 50
Faculty	US \$ 100

The Registration fee includes instructional materials, laboratory use and session teas.

The out-station participants will be provided with boarding and lodging on additional payment of Rs. 4,000/- in Visitors block subject to availability.