

GLOBAL INITIATIVE ON ACADEMIC NETWORK

(GIAN)



Ministry of Human Resource Development

GOVERNMENT OF INDIA

INTERNATIONAL SHORT-TERM PROGRAMME

ON

“TECHNO-ECONOMICS OF SOLAR PHOTO-VOLTAIC ENERGY SYSTEMS”

(21st -25th November 2016)



ORGANISED BY

**DEPARTMENT OF ELECTRICAL ENGINEERING, G. B. PANT UNIVERSITY
OF AGRICULTURE & TECHNOLOGY, PANTNAGAR, UTTARAKHAND,
INDIA-263145.**

OVERVIEW

Solar Photovoltaics (PV) currently plays a modest role in the worldwide pathways to 2050. Nevertheless, PV will play a significant role as it could be considered a complementary resource to wind, particularly in summer, and its deployment could be facilitated by the introduction of new distributed technologies such as electric vehicles with intrinsic storage capabilities. The course deals with one renewable energy system: PV electricity. The course has been formulated with the objective of covering most of the aspects of PV energy systems. The solar resource assessment is introduced, PV devices fundamental physics and manufacturing processes is explained. Moreover, PV systems are evaluated through component and techno-economic analysis. In addition advance topics in PV applications, decision making and grid integration are equally explained in detail. Software and industry specific calculations are also introduced. The course will include lectures, tutorials to solve practical problems and hands-on exercises on PV software.

OBJECTIVES

The primary objectives of the course programme are as follows:

- i. Exposing participants to the fundamentals of science and engineering in solar electricity,
- ii. Building in confidence and capability amongst the participants in the application of solar electricity and techniques in terms of holistic integration framework,
- iii. Providing exposure to practical problems and their solutions, through case studies and live/simulation based projects in solar electricity.

The course programme is delivered by internationally acclaimed academic, researcher and practitioner, **Dr Eur. Ing. Ing. Brian Azzopardi**, with proven knowledge, experience, and demonstrable ability in teaching, consultancy, research, and training in the field of photo-voltaics. The course programme will be planned and offered in accordance with the of GIAN program.

ABOUT PARTICIPANTS: *People from industry, research organisations, faculty & students from academic institutions around the world are welcome to apply.*

COURSE CONTENTS

Introduction to solar electricity; Global, regional and national challenges and opportunities, Assessment of the solar energy resource for a site, Solar cell technology, Photovoltaic systems, Techno-economic calculations & case study, Use of standard industrial software for solar electricity performance prediction, Advance applications viz. Photovoltaic farms, concentration, electrochemical, storage system, Advance decision making; policies, multi-criteria analysis; optimisation, Evaluate solar electricity within a grid, Advance solar electricity integration; micro-grids, electricity grids; optimisation, Review of literature; solar electricity projects, standards, and code of practice, Problem solving session with examples.

FEE STRUCTURE

- Participants from abroad: \$200
 - Professionals from industry/ research organizations: 10000 INR
 - Professionals from academic institutions: 5000 INR
 - Students from academic/research institutions: 2000 INR
- N.B. The fee includes soft copy of all instructional materials, computer & internet use for lectures & tutorials during course work and does not include fooding & lodging facility.*

BOARDING LODGING

The outstation participants will be provided with single/double occupancy accommodation and food on **payment basis** at university guest houses on prior request subject to availability.

HOW TO REGISTER

- (i) “Web register” at GIAN registration portal (www.gian.iitkgp.ac.in/GREGN/index) with once in life time fee of INR 500. Already registered persons can skip this step.
- (ii) Click “Course Registration” tab at GIAN Portal for displaying the list of approved courses. From the displayed list ‘check-box’ select “Techno-economics of Solar Photo-Voltaic Energy Systems” course & click ‘save’ button for registration. Finally click “Confirm course” to confirm your registration.
- (iii) Fill the form under “Application” tab either on-line or offline. The signed offline application should be sent to the course-coordinator via email.

BANK DETAILS

(i) Name of Bank	State Bank of India	
(ii) Name of a/c holder	GIAN Electrical	
(iii) A/C number	35938055149	MICR Code: 263002901
(iv) Branch address	Pantnagar, Code:1133	IFSC Code: SBIN0001133

* The course fee may be remitted in the above account through RTGS/NEFT transfer or by a bank draft in the favour of GIAN Electrical payable at SBI Pantnagar.

FACULTY PROFILE



Dr. Eur. Ing. Ing. Brian Azzopardi is a Senior Lecturer II at the Malta College of Arts, Science and Technology (MCAST), Malta. He was appointed as a senior faculty member and retained visiting status at Oxford Brookes University (OBU) and Kaunas University of Technology (KTU). He is former Associate Professor in Electrical Power and Energy at KTU and a former Senior Lecturer in Electric Vehicle Engineering at OBU. He has worked for Enemalta Corporation on the development and operations of the high voltage network, and as consultant on award-winning, first-time implemented projects in the energy field. His publications have been widely cited internationally. He also held honorary visiting positions at **The University of Manchester** and the **University of Malta**. He has over 16 years of academic and industrial experience in the power systems, renewable energy systems and electric vehicles and has published over 75 scientific and technical publications. He has been involved as principal / co-investigator / researcher in a number of industry funded pilot scale projects as well as projects funded by the UK Technology Strategy Boards (TSB), UK Engineering and Physical Science Council (EPSRC) and the European Commission.



Rajiv Singh is presently with the **Department of Electrical Engineering, College of Technology, G.B. Pant University of Agriculture and Technology, Pantnagar, Uttarakhand**. He has around twelve years teaching and research experience in several reputed academic institutions in India. The areas of his research interests include Control, Instruments and Sensors, Wind, PV and other renewable energy systems, Energy policy studies, Smart materials etc. He has several publications in peer-reviewed journals/conferences of national and international repute along with book chapters published by reputed international publishers. He has also attended several national and international conferences in India and presently holds a research project funded by TEQIP World Bank.

*Course Co-ordinator: **Mr. Rajiv Singh, Department of Electrical Engg., College of Technology, G.B. Pant University of Agriculture & Technology, Pantnagar, Uttarakhand, India. E-Mail: rajiv77singh@gmail.com, Mob.: +91-9935889880.**

For more details visit: www.gbpuat.ac.in