



Proposed Short Term Course On
Solar PV Modules and Systems
Testing and Characterization



26th - 28th November, 2014

Introduction:

The Continuing Education Program of the IIT Bombay and NCPRE are jointly organizing a three-day short course and workshop on **“Solar PV Modules and Systems Testing and Characterization”**.

With the advent of JNNSM and state -level solar energy programs, we now have 2.6 GWp of solar PV installations in India. In order to ensure desired long term performance of PV power plants, they need to be installed and tested to meet design requirements at both component and systems level. A good understanding of test and characterization techniques and equipment is required in the area of Solar PV modules, Balance of Systems components and PV systems. Over the last couple of years, NCPRE at IIT Bombay has developed both expertise and test facilities in the area of indoor and outdoor PV module testing

This short term course on **“Solar PV Modules and Systems Testing and Characterization”** will bring knowledge and hands-on experience in functional, performance and durability testing of PV modules, Balance of Systems (BoS) components and PV systems. The course will consist of both classroom and field sessions. The introductory topics will cover solar PV module technology and BoS components basics. The other classroom sessions will cover testing and characterization of PV modules, Inverters and BoS components as well as complete systems testing and performance evaluation. Various aspects of modules testing will be covered viz. electrical, optical, safety, reliability and field performance. The radiation and environment monitoring, PV modules and systems test standards and certification will be also included. The field sessions will be conducted at in-house facilities viz. PV module testing laboratory, outdoor PV module test facility and 1MWp distributed rooftop PV power plant at IIT Bombay.

Target Participants:

- PV modules, inverters and BoS components designers and manufacturers.
- PV power plant design, test and implementation industry professionals, both engineers and technicians.
- Solar PV components and systems test and certification agencies.
- Academic research staff and students engaged in design and testing of Solar PV components and systems.

Course Contents:

Proposed Classroom Topics:

- Solar PV Module Technology Overview
- Solar PV Module Manufacturing and Testing
- Solar PV Module Electrical and Optical Testing and Characterization
- Solar PV Module Qualification Testing and Certification
- Solar PV Module Durability Testing
- Solar PV Module Reliability Testing
- Solar PV Module Field Performance Testing
- Solar Radiation and Environment Monitoring
- Solar PV Inverter and Charge Controller Testing Basics
- Charge Controller and Battery Testing and Characterization
- Inverter and BoS Testing and Characterization
- PV System Performance Testing and Characterization

Proposed Field Sessions:

- Solar PV Module Test Lab Visit
- Solar PV Module Field Test Station Visit
- 1MW distributed rooftop PV power plant Visit

Eligibility:

A participant must have a minimum academic qualification of science graduation or engineering diploma. Participants may be from industry, individual or academic/research institutions. Basic knowledge and understanding of Solar Cell technology is a pre-requisite.

For information on other Solar Photovoltaic (PV) courses, please visit <http://www.ncpre.iitb.ac.in>