

Three-day CEP Short Term course  
On

## **Off -Grid Solar PV Components and Systems**

**October 10 – 12, 2012**

Venue:-  
Jalvihar Conference Hall  
Guest House  
IIT Bombay

Course Coordinators  
Prof. Suryanarayana Doolla  
Dr. Vaman Kuber



**National Centre for Photovoltaic Research and Education  
Indian Institute of Technology, Bombay**

# Overview of Off-Grid Solar PV Components and Systems

Venue: Guest House Jalvihar, IIT Bombay

## Time Schedule

Day 1: 10<sup>th</sup> October, 2012

Time	Title	Speaker
09:00 - 09:30	<i>Course registration and notes distribution</i>	
09:30 - 10:00	<b>NCPRE Introduction and Training Initiative</b>	Prof. C.S.Solanki / Prof. S. Doolla (IIT Bombay)
	<b>Course Objective and Outline</b>	Dr. Vaman Kuber
	<b>Participants Introduction</b>	Participants
10:00 - 10:30	<i>Tea break with informal discussion</i>	
10:30 - 11:30	<b>Concepts of Solar Radiation, Monitoring and PV Applications</b>	Prof. C. S. Solanki
11:30 - 13:00	<b>Basics of PV modules</b>	Prof. C. S. Solanki
13:00 - 14:00	<i>Lunch</i>	
14:00 - 15:00	<b>SPV modules, arrays and support structure functions, specifications and interface for off-grid applications</b>	Mr. Sridhar (BOSCH)
15:00 - 15:15	<i>Tea break with informal discussions</i>	
15:15 - 16:15	<b>Basic concepts and operation of battery charge controllers</b>	Prof. Kishore Chatterjee (IIT Bombay)
16:15 - 17:15	<b>Basic concepts and operation of stand-alone inverters and inverter-chargers</b>	Prof. Kishore Chatterjee
17:15 - 17:30	<b>Q &amp; A and Wrap up</b>	Dr. Vaman Kuber/ Other Presenters

## Day 2: 11<sup>th</sup> October 2012

Time	Title	Speaker
09:00 - 10:00	<b>Batteries and other energy storage systems: Concepts &amp; Operation in Off-grid PV Systems</b>	Prof. P.C.Ghosh (IIT Bombay)
10:00 - 10:15	<i>Tea break with informal discussion</i>	
10:15 - 11:15	<b>Battery charge controller functions and interface for SPV off-grid applications</b>	Mr. Shanmuganandam (PHOCOS)
11:15 - 12:15	<b>Stand-alone Inverter and inverter-charger functions and interface for SPV off-grid and grid-support applications</b>	Mr. Sumesh Nair (Neo Watt Power)
12:15 - 13:15	<b>Balance of Systems: Concepts and Interface for off-grid Applications</b>	Mr. Rajesh Kulkarni (Hensel)
13:15 - 14:15	<i>Lunch Break</i>	
14:15 - 15:15	<b>Battery operation, functions and interface for SPV off-grid applications</b>	Mr. Brajesh Sinha (HBL)
15:15 - 16:15	<b>Off-grid PV system design basics</b>	Dr. Vaman Kuber
16:15 - 16:30	<i>Tea break with informal discussion</i>	
16:30 – 17:30	<b>Off-grid PV system design exercise</b>	Dr. Vaman Kuber
17:30 – 17:45	<b>Q &amp; A and Wrap up</b>	Dr. Vaman Kuber/ Other Presenters

### Day 3: 12<sup>th</sup> October 2012

<b>Time</b>	<b>Title</b>	<b>Speaker</b>
9:00 - 9:45	<b>Concluding Session with Certificate Distribution and Briefing on Site Visit</b>	Prof. S. Doolla Dr. Vaman Kuber
9:45 - 10:00	<i>Tea break with informal discussion</i>	
10:00 - 11:00	<b>Off-grid/grid-support PV power plant case study</b>	Mr. Prasad Kulkarni/ Mr. Anshuman Lath
11:00 - 11:45	<i>Brunch</i>	
12:00 - 18:00	<b>Off-grid/grid-support PV power plant site visit</b>	Mr. Sandesh Pradhan, Aplab (P.S. Johnson, Rosoboron service India Ltd) Navi Mumbai