



PoTIC

PHOTOVOLTAIC TECHNOLOGY AND INNOVATION CENTRE (PoTIC)

and

NATIONAL CENTRE FOR PHOTOVOLTAIC RESEARCH AND EDUCATION

Continuing Education Program 3-Day Short-Term Course on

“Theory and Technology of Silicon Solar Cells”

In the context of incentives for manufacturing of solar cells and modules in India, a large workforce with the knowledge of the technology is needed in the country. This course aims to impart the necessary knowledge in a short span of time. The course will benefit practicing engineers, engineers and students who aspire to work in this industry, and educators who are planning to train such students.

Course Contents:

- Introduction to the physics of semiconductor devices (band diagram, optical absorption, generation-recombination, transport, pn-junction diode characteristics)
- Theory of silicon solar cells (characteristics of silicon solar cell, design of silicon solar cells - optical design, junctions, passivation, impact of these parameters on solar cell characteristics, IV measurements, quantum efficiency measurements)
- Production of silicon wafers starting with sand
- Fabrication of industrial PERC, TOPCon and HJT solar cells
- Simulation of solar cell using PC1D: a practical session
- Loss analysis of solar cells: a practical session
- Luminescence imaging, Light Beam Induced Current (LBIC), dark lock-in thermography characterization of Si wafer & solar cells for process, device development and diagnostics
- An introduction to thin film and tandem solar cells

Hands on sessions: The course would include hands on sessions on simulation of solar cells and loss analysis of PERC solar cells. The participants should bring a laptop running Windows OS. There would be visits to NCPRE silicon solar cell fabrication and characterization facilities. You may also get an opportunity to visit our module characterization and fabrication facilities if there is a specific interest.

Course Coordinator: Prof. Anil Kottantharayil, Department of Electrical Engineering and NCPRE, IIT Bombay

Date: May 28 - 30, 2025

Venue: IIT Bombay, Mumbai

The course fee per participant will be as follows:

PARTICIPANTS	FEEES
Overseas / Foreign National**	81000/-
Govt. Organization / Industry	27000/-
Academia	16000/-
Student (Full time)	8000/-

* Fee is inclusive of 18% GST. The fee includes course material, lunch and refreshments.

**The fee for participants from SAARC countries is the same as for Indian participants, which is given in the last 3 rows of the above table.

Limited accommodation is available for academic participants, at an additional fee. If you would like to avail accommodation on campus, please get in touch with Mrs. Ashwini Bangera at the details given below.

Contact for more info:

Mrs. Ashwini Bangera
NCPRE office, 4th floor, Rahul Bajaj Building,
IIT Bombay, Powai, Mumbai 400076
Landline: 022-21593582; Mobile: 8356982738
ashwini24@ee.iitb.ac.in

For more details and registration please visit:

https://portal.iitb.ac.in/ceqipapp/courseDetails.jsp?c_id=6170

For the information of other courses please visit following portal:

<http://www.ncpre.iitb.ac.in/events.php>