

Introduction and Course Outline

The Jawaharlal Nehru National Solar Mission (JNNSM) of Govt. of India has set up very ambitious target for utilization of solar PV technologies in the country because solar photovoltaic (PV) technologies provide an attractive renewable energy solution for growing energy demands of India and world. It is fascinating to see high growth rate (over 40%) PV industry is registering since last decade. Due to high growth the worldwide PV production is soon going to touch 10,000 MWp or 10GWp number! This is exciting time for PV technologies. There are many who seeks information about PV technologies and there are many who needs to be trained in order to accelerate PV growth in the country. This course is designed to service such people.

The course will cover range of PV technologies and related issues. Wafer based crystalline silicon (c-Si), amorphous Si (a-Si), Copper-Indium-Gallium-Selenide (CIGS), Cadmium Telluride (CdTe) are known technologies for PV that are presently in production. Among these, crystalline Si is dominant PV technology and captures over 80% of the PV market, in order to sustain the growth significant amount (>100,000 MTons) of solar grade Si is estimated to come out in the market. Relatively higher cost of PV generated energy prohibits its widespread use in terrestrial applications. Therefore fundamental research work is intensively being done on so-called second generation or thin-film PV technologies to bring

down the cost. In current scenario amorphous Si, CdTe and CIGS solar cells are being manufactured at commercial level. While the thin-film crystalline Si solar cells and thin-film organic solar cells etc. will be one of the technologies of the future. Concentrator PV technologies show great potential to reduce silicon consumption and reduce the cost of converted energy, particularly for countries like India.

Who may benefit from this course

The purpose of this course is to give a clear understanding of solar PV technologies to an individual who would like to embark on path of solar PV technologies. In this context, clarity on range of technologies, their fundamental limitations as well as advantages, their cost effectiveness, material aspects of technologies etc. needs to be understood.

The course would be useful for Individuals like investors, industry personnel, educationalists, policy makers or students would get an opportunity to get introduced to PV technologies and would get chance to know current status, international as well as national, of various solar PV technologies.

Course content

The course will contain following topics from solar PV technologies:

- The foresee of PV development in India
- Role of PV in renewable energy
- Understanding the Fundamentals
- PV Cell Design
- Wafer based Si cell technology

- Thin film solar cells – amorphous silicon
- Thin film solar cells- CdTe, CIGS
- Sensitized solar cells
- Emerging PV technologies
- Characterization and testing
- Electronics for grid and off-grid PV systems
- Energy storage options for PV systems
- PV system design and economics
- Simulation of Solar cells

Laboratory visits and hands on

(Note - The course material in the form of hard copy will be provided to the participants)

Pre-requisite

Any individual with interest in solar PV technologies can join the course.

Venue: GG Seminar Hall, Near EE Department, IIT Bombay

Course fee

Participants	Course Fee (Rs)
Delegates from Industry	10000
Others	5000
Students	3000

Note: Financial support will be available to deserving students

Number of Participants: Restricted to 40

Accommodation: Limited accommodation is available on payment basis.

Last date of registration: 10th Sept., 2010

How to Apply

Applicants may mail the filled up Registration form along with the draft drawn in favour of "The Registrar IIT Bombay (CEP A/c)" to the Course Coordinator for confirmation of registration in the course (only 40 seats). Last date for registration is 10th September 2010.

Kindly note that no income tax is to be deducted at source from the course fee payments, as IIT Bombay is exempt from the same.

Please send your registration form / queries or any other communication to the Course Coordinator:

Course Coordinators

Prof. Chetan S. Solanki/ Prof. Pratibha Sharma
Department of Energy Science and Engineering
Indian Institute of Technology Bombay
Powai, Mumbai-400 076

Registration & Accommodation

Contact **Mr. Prem Lonke** for registration and accommodation

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For information on other Continuing Education Programmes at IITB, contact:

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Three-Day Course on

SOLAR PHOTOVOLTAIC TECHNOLOGIES

Introduction and Current Status

September 16-18, 2010

IIT Bombay

