SOLAR PHOTOVOLTAICS : PRINCIPLES, TECHNOLOGIES & MATERIALS

PROF. ASHISH GARG
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PRE-REQUISITES : Basic physics knowledge

INDUSTRIES APPLICABLE TO : Most companies related to solar photovoltaics

COURSE OUTLINE :
This course is an introductory course on solar photovoltaics materials and devices covering fundamentals of operation of solar cells, physics of semiconducting materials, P-N junction device characteristics in dark and light. We will also discuss various solar photovoltaic technologies and their status with a brief discussion of the fabrication aspects of the devices. The course will also discuss the materials and technologies issues as well as device measurement techniques.

ABOUT INSTRUCTOR :
Prof. Ashish Garg is Professor of Materials Science and Engineering at IIT Kanpur. Details of his research and teaching can be accessed on home.iitk.ac.in/~ashishg/

COURSE PLAN :

Week 1**:** Introduction and Solar radiation fundamentals

Week 2**:** Basic physics of semiconductors

Week 3**:** Carrier transport, generation and recombination in semiconductors

Week 4**:** Semiconductor junctions

Week 5**:** Essential characteristics of solar photovoltaic devices

Week 6**:** First Generation Solar Cells

Week 7**:** Second Generation Solar Cells

Week 8**:** Third Generation Solar Cells