NPTEL Video Course - Physics - NOC:Solar Energy Engineering and Technology

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Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Energy Scenarios
Lecture 2 - Overview of solar energy conversion devices and applications
Lecture 3 - Physics of propagation of solar radiation from the sun to the earth
Lecture 4 - Solar radiation and sunshine measuring instruments
Lecture 5 - Geometry, angles and measurement - I
Lecture 6 - Geometry, angles and measurement - II
Lecture 7 - Estimation of radiation under different climatic conditions
Lecture 8 - Estimation of radiation in horizontal and inclined surface
Lecture 9 - Fundamentals of PV cells
Lecture 10 - Semiconductor physics
Lecture 11 - Performance characterization of PV cells
Lecture 12 - Photovoltaic modules and arrays
Lecture 13 - Components of standalone PV system
Lecture 14 - Design of standalone PV system
Lecture 15 - Functioning and components of PV system
Lecture 16 - Design of a grid connected PV system
Lecture 17 - Performance analysis of a grid connected PV system
Lecture 18 - Basics of thermal collectors
Lecture 19 - Basics of heat transfer
Lecture 20 - Solar collector losses and loss estimation
Lecture 21 - Analysis of flat plate collector
Lecture 22 - Influence of various parameters on the performance of LFPC
Lecture 23 - Testing and application of LFPC
Lecture 24 - Basics and performance analysis of solar air heaters
Lecture 25 - Testing and application of solar air heaters
Lecture 26 - Fundamentals of concentrating collectors
Lecture 27 - Concentrating collector technologies and working principle
Lecture 28 - Tutorial
Lecture 29 - Sensible heat, latent heat and thermochemical energy storage

Lecture 30 - Solar pond
Lecture 31 - Tutorial
Lecture 32 - Emerging technologies
Lecture 33 - Solar energy applications in cooking, desalination, refrigeration and electricity generation
Lecture 34 - Tutorial