

# **Sustainable solar energy**

## **Description:**

Solar energy is a sustainable energy and is inherently more sustainable than fossil fuel energy sources. When the sun shines onto a solar panel, photons from the sunlight are absorbed by the cells in the panel, which creates an electric field across the layers and causes electricity to flow. The second technology is concentrating solar power, or CSP. It is used primarily in very large power plants and is not appropriate for residential use. This technology uses mirrors to reflect and concentrate sunlight onto receivers that collect solar energy and convert it to heat, which can then be used to produce electricity’.

## **Day 1:**

- Solar Energy Scenario
  - Policy Initiatives
  - Challenges
  - Technical and Regulatory Issues.
- Electrical and Electronics Fundamentals.
- Basic Principles, Concepts of Photovoltaic Cells and Components



## **Day 2:**

- Highly Efficient Technologies and Performance Indicators of Solar PV Modules
- Solar Inverters and Battery Systems- Technologies and Performance Indicators
- Maximum Power Point Tracking (MPPT) Charge Controllers
- Hands-on Session on Inverters and Charge Controllers
- Hands-on Session on Solar Tools (crimping tool, wires, solar connectors)
- Site Design and Analysis, Smart Tools
- System Designing of PV for Off-grid, On-grid & Hybrid

## **Day 3:**

- Site Design and Analysis, Smart Tools
- System Designing of PV for Off-grid, On-grid & Hybrid
- Quality Standards for Off-Grid and On-Grid Solar PV Systems (design, installations & service)
- Operation, Maintenance and Trouble Shooting.
- Practical: Solar Pumping
- Practical: Lightning Applications
- Project: Solar Charger

- Project: Home Automation using Arduino and Solar.
- Case Study on System Design
- Query Session