



an  eegis company

بروجاكس للتدريب والتطوير
Projacs Training and Development

Renewable Energy-Solar PV & Thermal Solar

01 – 03 September 2020

ONLINE COURSE

A Member of:



PROJACS ACADEMY



ProjacsAcademy.com



Introduction

Solar energy is one of the renewable energy resources in nature. Solar energy technologies convert the sun's light into usable electricity or heat. Solar energy systems can be divided into two major categories: photovoltaic and thermal. Photovoltaic cells produce electricity directly, while solar thermal systems produce heat for buildings, industrial processes or domestic hot water. Thermal systems can also generate electricity by operating heat engines or by producing steam to spin electric turbines. Solar energy systems have no fuel costs, so most of their cost comes from the original investment in the equipment. The course will highlight all the details about the utilization of such energy for different applications and use together with the design and calculation applications.

Course Outlines

- **Introduction to solar energy**
 - Solar Energy production curve vs. Household energy demand curve
 - Power concepts & Units
- **Identify the factors affecting the sun's apparent position and path through the sky**
- **Design of a system for solar heating**
 - Solar thermal applications:
 - Solar thermal power systems (household, centralized),
 - Thermal energy storage.
- **Calculations of solar heating systems**
- **PV systems and main components**
 - Photovoltaics: Introduction to solar energy,
 - Solar geometry, photovoltaic effect,

- **Construction details of a PV system**
 - How do solar cells convert solar energy into electrical energy?
 - What are the basic building blocks of a solar cell?
- **Major calculations of loads**
- **Demonstrate how solar radiation data is used in sizing and estimating performance for PV systems.**
 - Study of a Solar Energy Generating System and
 - Annual energy Production
- **The difference between PV cells**
 - Modules,
 - Arrays.
- **The fundamental operation of PV devices**
 - The electrical load,
 - Solar radiation, and operating temperatures and its effect.
- **Calculations of electrical output of similar and dissimilar PV devices connected in series and in parallel**
 - Describe the various performance rating conditions for PV modules.
- **How to design a PV system**
 - Simple system
 - Advanced system
- **Tracking mechanism in solar PV systems**
- **Solar concentrators**

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Training Method

- Live group instruction through the online platform.
- Use of real-world examples, case studies and exercises.
- Interactive participation and discussion.
- Powerpoint presentation, and online activities.
- Self-assessment tests and group think exercises.
- Mini-individual presentation and sharing feedback.

Duration

Three-Day Program

Schedule

Daily Schedule*:

- | | |
|-------------|-------------------|
| • Session 1 | 09:00AM - 10:00AM |
| • Break | 10:00AM - 10:15AM |
| • Session 2 | 10:15AM - 11:15AM |
| • Break | 11:15AM - 11:30AM |
| • Session 3 | 11:30AM - 12:30PM |
| • Q & A | 12:30PM - 01:00PM |

* Mecca time

* Course agenda can be adjusted according to client's preference

Course Fees*

- **700 USD**

**VAT is Excluded If Applicable*