

2 DAYS SHORT COURSE : DESIGN AND SIMULATION OF GRID CONNECTED PHOTOVOLTAIC (GCPV) SYSTEM USING PVSYST

Duration: 2 days

Method of teaching: Face to Face

Trainer: Dr. Ahmad Maliki Omar

Synopsis: The "Design and Simulation of Grid-Connected Photovoltaic (GCPV) Systems using PVSyst" is a comprehensive 2-days short course that aims to equip participants with the essential knowledge and practical skills to design and simulate solar photovoltaic (PV) systems for grid connection using the industry-leading software, PVSyst. This course is ideal for engineers, solar energy enthusiasts, and professionals seeking to enhance their expertise in solar PV system design and performance analysis.

Contents:

1. Introduction to grid-connected photovoltaic (GCPV) system

- Types of GCPV system
 - Microinverter System
 - DC Optimiser system
 - String and central inverter
 - Single-phase inverter
 - Three-phase inverter
 - Multiple MPPTs
 - Transformerless and transformer-based inverter
 - Types of connection
 - LV connection – single line diagram
 - MV connection – single line diagram
 - HV connection – single line diagram
- Types of GCPV scheme
 - Fit
 - NEM and SelCo
 - LSS
- Advantages and disadvantages of NEM

2. Design concept of GCPV system

- DC/AC ratio or overload ratio
- Safety of inverter
- Optimum operating conditions
- Power clipping

3. Introduction to PVSyst

- Simulation flow

4. Siting and Meteo Definitions

- PVSyst components library

- Create a new site with meteorological data

5. Tilt angle and Azimuth

- Set mounting type, tilt angle and Azimuth angle
- Albedo – light reflection from the ground
- Effect of tilt and Azimuth angle

6. Electrical system

- PV modules; PVsyst components library and new modules
- Inverters; PVsyst components library and new inverter
- Cables; Declare DC and AC cable loss

7. Sizing PV-Inverter

- Sizing using a single MPPT inverter
- Sizing using multiple MPPT inverters
- Sizing using many inverters – LSS plant
- Method of inverter selection based on PV array capacity
- Optimum sizing condition; voltage, current and power requirements
- Method of finding optimum PV array configuration; N_p and N_s

8. Shading

- Far shading – method of input data from Solarpath finder chart
- Near shading – 3D drawing and Shading simulation
- Polar and rectangular plots

9. Other losses

- Thermal
- Ageing
- DC and AC cables
- Unavailability
- Dirt
- Incidence Angle Modifier
- Light-Induced Degradation
- Mismatch
- Auxiliary devices

10. Self-consumption

- Household daily
- Power factor adjustment and reason
- Grid power limitation and reason

11. Simulation and reporting

- Explanation on the report format

Requirements: -

- Each participant shall have his/her own PVsyst software V7.0 or the latest installed.
- Each participant shall bring his/her own laptop during the course.

Relevance

- Engineer / Competent Person / Qualified Person
- Technician / Chargeman / Wireman / Installer
- Contractor / Service Provider
- Project Manager / Regulator
- Academia / Researchers

Venue

TBD

Fee

MYR1500

Contact

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