



**C.V. Raman GalSen**  
Centre of Excellence



## OFF-GRID SOLAR SYSTEMS DESIGN, OPERATION AND MAINTENANCE

### Overview:

The course deals with design and development of stand-alone PV systems, study and operation of its components, hardware installation, Protection, control, storage and applications.

### Participant Profile:

- B.Tech (EE/EEE)/ Diploma (EE)/ ITI Students (Electrician Trade)
- Industry Personnels/ Technicians/ Electrical and Allied Sciences

### Contents:

#### Module: 1 : Solar panels

- Working principle
- Types of solar panels
- Series Parallel connection
- Factors affecting the performance of Solar Panels
- Maintenance

#### Module: 2 : Battery

- Types of Battery
- Solar battery technologies
- Selection of Battery for Solar installation
- Series Parallel connections
- Maintenance

#### Module: 3: Solar charge controllers

- Working principle
- Types of solar charge controllers
- Functions of Solar charge Controllers

#### Module: 4 : Solar inverters

- Working principle
- Types of solar charge controllers
- Functions of Solar charge Controllers

#### Module: 5 : DC Appliances, AC Appliances, Safety and protection



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- Electrical Safety and Care
- Electrical Fire Safety
- Protection

### **Learning Outcomes:**

The participants will be able to:

- Identify location for PV system installation and prepare site survey report.
- Select the right components and tools for system design.
- Design Off grid PV system as per load requirement along with days of autonomy.
- Troubleshoot any issues arising with any components used in the entire PV system/appliances.
- Operation and control and maintenance of Stand-alone PV systems.
- Apply the knowledge and prepare detailed Project Report for any PV system.

### **Pre-requisites:**

- Basic Knowledge on Electrical and Measurement Tools
- Basic Electrical Engineering
- Communication Skills

### **Evaluation:**

- Theory and Practical Examination
- Case Study
- Project work based on industrial application

### **Teaching learning Pedagogy:**

- Both synchronous and asynchronous
- ICT based content delivery
- Hardware Practice sessions

**Duration of the course:** 36 Hours, 6 Hours/Day

### **Fees And Other Details:**

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