



# **MX Academy** **Solar Power Engineering Training & Certification Program**

## **Course Details**

### **MX Academy of Technical & Creative Arts**

Plot 8/9 Old Odukpani Road,  
By Eburutu Military Cantonment,  
Calabar, Cross River State, Nigeria.

**Tel:** +234 8088 372 145, +234 812 301 1179.

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**Website:** [www.mxacademy.ng](http://www.mxacademy.ng)

## MX Academy

# Solar Power Engineering Training & Certification Program

**Overview:** This training program is designed for individuals interested in becoming experts in renewable energy, specifically in solar inverter power systems. Participants will learn how to design, assemble, and install solar inverter electricity power systems suitable for residential and commercial applications.

## What You Will Learn:

- ✓ Install and maintain solar systems
  - ✓ Design hybrid & off-grid solutions
  - ✓ Master inverters, batteries, and charge controllers
  - ✓ Design low voltage and high voltage solar power systems
- ✓ Design and setup single phase solar power systems
- ✓ Design and setup 3 Phase Solar Power Systems
- ✓ Become a guru on lithium battery setups
- ✓ Have practical knowledge for starting up a solar manufacturing business.

## Training Delivery Mode:

The training will be delivered in two modes namely:

1. Online Class
2. Physical Class [available for group training]

## Why Choose MX Academy's Solar Training?

### Try Before You Commit

✓ **Free Demo Class** — Experience the training firsthand and see the value for yourself.

### Beginner to Advanced Curriculum

- ✓ Start with the fundamentals and progress to designing **large-scale solar systems**.
- ✓ Includes hybrid and off-grid system design for maximum career versatility.

### Real-World Case Studies

- ✓ Learn from successful solar projects across Africa.
- ✓ Apply classroom lessons to real-world scenarios.

### Capstone Project

- ✓ Design and present a **1–5 KVA solar system project**.

- ✓ Design and present a 10 – 200KVA solar system project.
- ✓ Graduate with a portfolio that demonstrates your expertise.

### Globally Recognized Certification

- ✓ Earn a certificate that boosts your credibility and employability worldwide.

### Flexible Learning Options

- ✓ Attend physically in Calabar or join virtually from anywhere in the world.

### Learn from Industry Experts

- ✓ Our trainers are professionals with years of field experience in solar engineering.

### Career & Business Opportunities

- ✓ Get the skills you need to work in renewable energy or start your own solar business.

### Ongoing Mentorship & Support

- ✓ Access continuous guidance and career advice even after the training.

### Relocate & Work Abroad With Ease

- ✓ With our certification, it becomes easier to migrate as a skilled professional under the Skilled Migrants Program to America and Europe. Most of the persons we have trained are now working abroad.

## How to Register

Go to <https://www.mxacademy.ng/register/> or <https://www.mxacademy.ng/online-class-registration-form/>

## Training Duration & Fees

*Regular fee for this training is N800,000. Take advantage of the current promo fares.*

100 USD or N100,000 for Beginner Class [Duration: 2 Weeks]

200 USD or N200,000 for Advanced Class [Duration: 2 Weeks]

**Total Fees [Promo Fare] : 300 USD or N300,000**

## Account Details for Payment

<b>Bank:</b> First Bank Nigeria Plc <b>Account Name:</b> MX Creative Studios <b>Account Number:</b> 2024 571 681.	<b>Bank:</b> Moniepoint Microfinance Bank <b>Account Name:</b> MX Academy of Technical & Creative Arts <b>Account Number:</b> 812 3011 179.
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# **Class 1:**

## **Beginner Solar Power System Engineering**

### **Course Outline:**

#### **Lesson 1: Electricity/Electronics Fundamentals**

- Introduction to basic electrical concepts.
- Overview of solar panels: types, voltage, and wattages.
- Overview of batteries: types, voltage, and wattages.

#### **Lesson 2: Working With Batteries**

- Understanding battery terminals and polarity.
- Techniques for parallel and series connections.
- How to interpret battery level readings.

#### **Lesson 3: Working With Inverters**

- Types of inverters and their applications.
- Step-by-step guide on how to connect inverters.

#### **Lesson 4: Working With Solar Panels**

- Types of solar panels and their characteristics.
- Best practices for handling solar panels.
- Instructions on how to connect solar panels.

#### **Lesson 5: Working With Charge Controllers**

- Types of charge controllers and their functions.
- How to connect charge controllers.
- Reading and interpreting charge controller data.

#### **Lesson 6: Designing and Setting Up Low Capacity Solar Power Systems**

- Step-by-step design of a 12 Volts 1KVA solar power systems.
- Step-by-step design of a 24 Volts 2KVA solar power systems.
- Step-by-step design of a 24 Volts 4KVA solar power systems.
- Step by-step design of a 48 Volts 5KVA solar power systems
- Common mistakes to avoid during installation.
- Final thoughts and best practices for successful installations.

## **Class 2:**

# **Advanced Solar Power Engineering Training**

*(For participants who have completed the Beginner Class or have prior knowledge)*

### **Lesson 1: Advanced Electricity & Power Systems**

- Deep dive into DC vs AC systems in solar engineering.
- Resistance (Ohms)
- Importance in Solar Systems
- Three-phase vs single-phase power in solar installations.

### **Lesson 2: Battery Storage & Energy Management**

- Advanced lithium-ion and LiFePO<sub>4</sub> battery technologies.
- How to setup Battery management systems (BMS):
- Techniques for maximizing battery life and efficiency.

### **Lesson 3: Hybrid & Off-Grid Solar Systems & Load Calculation**

- Hybrid solar systems with grid-tie and generator backup.
- How to calculate the load a solar power system can power
- Practical Project: Design and simulation of a high capacity hybrid solar system.

### **Lesson 4: Hybrid Inverters & Lithium Battery Settings**

- How to connect high capacity hybrid inverters with high capacity Lithium batteries.
- How to connect high capacity hybrid inverters with solar panels
- Troubleshooting inverter faults and failures.

### **Lesson 5: Single Phase Versus 3 Phase Solar Power System**

- Introduction to 3 Phase Electricity.
- Designing a 3 Phase 30KVA Hybrid Solar Power system.

### **Lesson 6: High Capacity Solar Power System Design**

- Advanced load profiling and demand forecasting.
- Designing a 10KVA Hybrid Solar power system.
- Designing a 10KVA Non-Hybrid Solar power system.
- Designing a 20KVA Hybrid Solar Power system.
- Designing a 3 Phase 30KVA Hybrid Solar Power system.
- Designing a 50KVA Hybrid Solar Power system.
- Designing a 100 - 200KVA Off-grid solar systems for rural electrification.

### **Lesson 7: Maintenance, Safety & Risk Management**

- Predictive and preventive maintenance strategies.
- Troubleshooting electrical faults and energy losses.
- Risk assessment and mitigation
- How to prevent downtime in a high capacity solar power project.

### **Lesson 8: Designing a Solar Power Car Park.**

- Factors to consider when designing a solar car park.