

**Classroom Material/Equipment Requirements**  
**Photovoltaics – Level 1**  
**ETA International**

**Classroom:**

1. Manual/Workbook (approved by ETA)
2. Support and resource materials (Videos, Catalogs, Spec Sheets, additional Books)
3. Slide or video presentation(s)
4. Calculators
5. Access to Internet
6. Copy of the NEC® (recommended)

**Consumables:**

1. Various AWG wire
2. Various wire connectors
3. 12-volt switch(es)
4. 12-volt fuse(s)
5. 12-volt disconnect(s)
6. Half (½”) inch EMT conduit

**Tools:**

1. Volt-Ohm Meter(s)
2. Wire Strippers
3. Wire Crimpers
4. Screw Drivers
5. Assorted open end wrenches
6. Kill A Watt Meter
7. Pyrometer (solar energy meter)
8. Infra-Red Thermometer
9. Solar Pathfinder (or equivalent)
10. Fiberglass Ladder (appropriately rated for weight)
11. Compass (or smart phone with compass app)
12. Personal Climbing Harness / Lanyard
13. ½ inch one-shot conduit bender
14. Hard Hat
15. Gloves
16. Safety Goggles

**Equipment:**

1. Solar Panels (minimum of 3)
2. Commercial Racking upon which to mount panels
3. 12-volt Deep Cycle Batteries (minimum of 4)
4. Combiner Box (with breakers)
5. AC Disconnect