CONSULTING
SALES
SUPPORT
TRAINING

Curriculum

The Small Wind and Solar PV installation training system curriculum includes the following activities:

Activities

1. Renewable Energy Basics
2. Personal Safety
3. Site Safety
4. Electrical Safety
5. Lockout / Tagout
6. Abbreviations, Connections & Symbols
7. Wire and Sizing Wire
8. Introduction to Ohms Law
9. Electrical Instrumentation
10. Series and Parallel Circuits
11. Alternating Current
12. Grounding and Current Protection
13. Solar Codes and Standards
14. Wind Codes and Standards
15. Plans and Blue prints
16. Introduction to Solar Photovoltaic
17. Solar Pathfinder
18. Pyrannometers and Pyroheliometer
19. Photovoltaic Sitting
20. Photovoltaic Installation
21. Solar Panel Roof and Ground Mount
22. Solar Panel Pole Mount
23. Photovoltaic System Wiring
24. Charge Controllers
25. Solar Array Configurations
26. Wind Power Theory
27. Wind Meters
28. Wind Site Evaluation
29. Wind Tower Installation
30. Wind Turbine Installation
31. Wind System Wiring
32. Storage Systems
33. Inverters
34. Integration and Balance of System Components
35. Estimating Home Energy Needs - System Design
36. System Performance and Monitoring
37. Energy Conservation
38. PV Maintenance and Troubleshooting
39. Small Wind Maintenance
40. Practical Project

Progressive Educational System's Renewable Energy training systems use real world technology to demonstrate how wind turbines and solar cells are beginning to transform the way the world is powered.

GreenEd ™

Progressive Educational Systems GreenEd line provides renewable energy training systems in the following areas for both high school and college level programs: wind, solar, hybrid Systems, Bio diesel, hydrogen, troubleshooting, installation skills, system design, certification programs

Web-Lab ™

The unique GreenEd Computer monitoring system provides the following advantages:, Site License, On-Line Monitoring, School Branded URL, Cost savings analysis, Carbon Footprint, Payback periods

Fossil fuels and nuclear power are at the center of today's most divisive political and environmental issues. What are the alternatives to these polluting, nonrenewable fuel sources?

Mankind's traditional uses of wind and solar power are widespread in developed and developing countries. However, the mass production of electricity using renewable energy sources has become more common place only recently. This reflects the major threats of climate change due to pollution, exhaustion of fossil fuels, and the environmental, social and political risks of fossil fuels and nuclear power. Many countries and organizations promote renewable energies through taxes and subsidies.

Progressive Educational Systems has developed a line of renewable energy training systems to address these environmental concerns.

Technology Education Concepts
Northeast Academic Representative:
32 Commercial St., Concord, NH 03301 | www.TECedu.com | 800-338-2238 | info@TECedu.com

GreenEd ™

Small Wind and Solar PV Installation Training Systems

simplifying renewable energy education

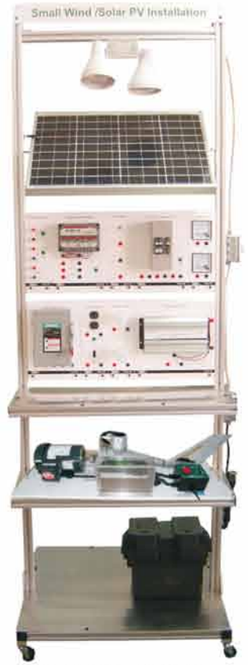
Think Green
Act Green
Be Green!

Northeast Academic Representative:
Technology Education Concepts

consulting
sales
support
Training

Progressive at work for you!

Think Green
Act Green
Be Green!



07-3234-02 Small Wind and Solar PV with Mobile Rack , Panel and Lights

flexible solutions to meet

your specific educational needs

The Small Wind and Solar PV Installation trainers consist of the following components:

Wind Generator with in-class/outside mount
400W wind turbine is mounted on an in-class assembly or outside on a tilt up pole. (pole not included).

(2)40W Solar Panel with in-class mounts
Delivers 40W of power in peak sunlight. Mount on a portable side of pole and roof assemblies.

Wiring Skills Panel
Enforces electrical wiring skills like pulling wire through conduit and making electrical connections

The new Small Wind and Solar PV Installation Training systems from Progressive Educational Systems provides the skills necessary to install and test a wind turbines and solar PV installations. This program has been approved by the Electronics Technician Association (ETA) and meets the requirements for the North American Board of Certified Energy Practitioners (NABCEP) exam.

This training system includes everything required to function as a "turn-key" learning station; lesson plan, student guide, bench top or mobile stand, modular component panels, analysis tools, instrumentation, energy producing equipment and in class mounts. The module provides student instruction for up to 65 hours.

The Lesson Plan includes an Instructor's Guide which provides instructions for installing, setting up, and implementing the module. It also includes learning outcomes, testing and evaluation procedures, answer keys, student skills response, inventory list and print CD.

The Student Activity manual guides students through 66 multi-disciplinary activities using the tools, and equipment included with the module package. It also contains daily activity response sheets and activity notes.

Trainer Configurations

07-3234 Small Wind and Solar PV Installation - Includes both solar and wind components.
07-3244 Small Wind Installation - Includes wind specific and common components.
07-3254 Solar PV Installation - Includes solar specific and common components

Certification

The curriculum for these training systems has been written to meet the objectives of the Electronics Technician Association (ETA) outcomes for the Small Wind installation program as well as the Solar PV installation program. By competing the Progressive Educational Systems small wind or solar PV course and writing the ETA exam, students will be certified to install in the respective area. ETA is recognized in North America and around the world.

CONNECTING YOUR SCHOOL TO THE RENEWABLE ENERGY TECHNOLOGY RESOURCES YOU NEED

Switch/Outlet Panel
Duplex receptacle and light switch for use in basic electricity activities.

DC Light/Load Panel
DC incandescent lights for use in basic electricity activities and as a load for system.

Solar Charge Controller Panel
Prevents overcharging and discharging of batteries. Required for solar power systems. Handles up to 30A current or 450W of solar power.

Main Breaker
Used as disconnect switch as well as lockout tag out activity.

Ammeter Panel
Analog ammeters for measuring DC current flow.

Stop Switch Panel
For breaking the wind turbine during installation or maintenance.

Disconnect/Breaker
Used as a disconnect switch for the solar, wind and main as well as breaker protection.

Power Distribution Panel
Distributes power from the Solar panels, wind turbine and battery.

Green-ED Monitor
Provides data acquisition of wind, solar and battery voltages and currents. Computer software helps display this data graphically over periods of time. Optional temperature, wind speed and solar radiance.
Optional Item

Not Included

Power Inverter Panel
Converts 12V DC battery power to 120V AC solid state control circuits provide a maximum 1,000W of power

Instrumentation
digital clamp multi-meter, Solar Path finder, pyranometer, annonometer,

12V Renewable Energy Deep Cycle Battery
Renewable energy deep cycle battery. 12V sealed deep cycle lead acid battery. 100 ah at 100 hour rate

Stackable lead package
Red, black and green stackable leads of varying lengths.

Accessories
Lock out lock and tags, 120Vdc incandescent light bulbs, 60W 120 Vac incandescent light

Load Device
AC load and conservation activities.

Stand Options
Desktop
Mobile with shelf
Mobile - Double sided
Mobile with overhead solar panel and variable light

Desktop Rack

CUSTOM SOLUTIONS
Choose from a variety of options including mounting options number of solar panels wind turbines and other configurations

WEB SOLUTIONS
Ask about our media options - network or online monitoring, print or multimedia curriculum

TRAINING AND SUPPORT
All systems and solutions are professionally installed along with component orientation to your satisfaction

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