



DEGEM
SYSTEMS

Tech-Prep

Solar energy training system

Wind energy training system

Solar water heating energy
training system

Polar robot & robotics principles
training system

Conveyors & sorting machines
training system

Cartesian robot & computerized
storage training system

CNC lathe machine training
system

CNC milling machine training
system

Process control training system

Basic electronics training system

Basic communications systems

Basic pneumatics training system

Basic hydraulics training system

Basic mechanics training system

Pressure forming & inflation
training system

Bending & vacuum forming
training system

TP-3704

Solar Water Heating Energy Training System

Objectives

This course introduces the student to the application of solar energy to heat water. It emphasizes the environmentally friendly nature of solar energy. The student is acquainted with greenhouse and thermodynamic effects. Also discussed is the effect of height differences between water reservoirs in connection with power generation.

The system courseware and experiments will enhance the students' interest and curiosity. They also establish an awareness of the technologies involved in the subject discussed, and the interaction between scientific phenomena, these technologies and common applications relating to solar water heating energy conversion.

Description

The system includes a lamp that simulates the sun and a water tank connected to a radiator that is used to convert the solar energy to heat energy. Also included are components for demonstrating the effect of heat radiation, absorption and reflection. The temperature at various points is measured by temperature probes and digital displays.



Specifications

LEARNING PROGRAM

- Tech Prep pedagogical guidelines
- Concept of work, power, energy and efficiency
- Different forms of energy
- Energy conservation
- Green energy
- Using the TP-3704 training system
- Greenhouse effect
- Heat transfer
- Improving solar water heating efficiency with thermal insulation
- Effect of incident light angle on water heating performance

The courseware or e-book contains the essential theory and detailed procedures for each hands-on activity.

TECHNICAL CHARACTERISTICS

- Light source power (60 Watts)
- Light voltage (12 VDC)
- Draining ball valve
- Water tank
- Integrated circuit temperature sensor
- Digital temperature display
- Operating voltage (110 -230 VAC) (external switching supply)
- General dimensions (610(w) x 420(l) x 510(h) mm)
- Emergency stop button
- Main power switch

SUPPLIED ACCESSORIES

The learning unit is supplied with the following accessories:

- External temperature probe
- Syringe for sucking air out of water pipes
- Insulating plate
- Halogen lamps (3)
- Courseware or electronic book (soft copy) for MS-Windows PC

OPTIONAL ACCESSORY

Personal computer with MS Windows (not included)

SAFETY FEATURES

The following safety features are provided by the learning unit:

- 'Emergency Stop' pushbutton that cuts off all electricity to the unit when pressed.
- The lamp is covered with a cover made from insulating material to prevent touching it when hot.