

Renewable energy lab

Experiments

Wind Power Generator Trainer

- Calculation of wind energy
- Wind power generator
- Brushless generator
- Voltage regulation
- Energy conversion
- Devices for storing energy

Clean Energy Trainer

- Solar and wind training
- Hydrogen and fuel cell training
- Energy storage and conversion
- Introduction to Micro-grids and hybrid systems
- Load and weather simulations

Mini Photovoltaic Trainer

- Solar cells (features, functions, etc)
- Solar modules (features, functions, etc)
- Circuit types of solar modules
- Solar characteristics
- Influence of temperature
- Influence of shades
- Photovoltaic system

Solar Energy Trainer

- Energy generation using solar panels
- Maximizing the power output by means of optimizing panel position
- Shadowing
- Storage of electrical energy
- Power measurements of AC loads

In this lab, students learn the practical aspects in renewable energy, clean energy, wind power and photovoltaic systems.

- **Wind Power Generator Trainer** enables experimental investigation on the conversion of wind energy into electricity by means of wind power generator.
- **Clean Energy Trainer** resembles a complete renewable energy micro-grid. It combined solar and wind power with hydrogen based energy storage.
- **Mini Photovoltaic Trainer** is a foundation course in using solar cells. It deals with structure and the function of solar cells. The function of solar cells with different conditions is examined with animation and several illustrations.
- **Solar Energy Trainer** include topics on generation of power in the solar modules, the storage of the power generated and

