

SMART MICROGRID LABORATORY

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The objective of this project is to build and set up the “Smart Microgrid” Lab at CSUN College of Engineering. This project includes different tasks in which students have the opportunity to participate and work as a team with the faculty to set up a rooftop renewable station which includes four solar panels and one wind turbine. The real-time monitoring and data acquisition system will be designed, built and implemented to be able to collect and record the output power station data. In the second part of this project, the system output will be converted to AC and will be synchronized with the electric grid signal. Students will help in setting up the hardware and programming with tools such as Simulink and Labview to achieve the goal. Students will learn how to work with advanced NI inverter control boards. These FPGA boards are designed to handle high frequency switching schemes and are programmed with Labview.

In addition, students will aim in setting up the SEL (Schweitzer Engineering Laboratories) digital protection devices which are specified for the protection layer of the Smart Microgrid testbed.