

EIMT 175 : Advanced Renewable Energy PV

Credits: 3

Class Hours: 2 lecture and 2 lecture/lab

Prerequisites: "C" or higher in EIMT 170.

Description: This course is designed to advance the student in the photovoltaic field using battery technology and stand-alone systems. Emphasis is on the application of photovoltaic systems following the National Electrical Code rules. System sizing, conductor sizing, grounding, and overcurrent protection are covered. Successful completion of the course satisfies the educational requirements for an individual to take the North American Board of Certified Energy Practitioners (NABCEP) Certification exam.

Semester Offered: Spring

Course Student Learning Outcomes (CSLOs):

1. Demonstrate the use of all types of batteries for selection, maintenance, and proper hook-up to a PV battery system appropriate for the grid.
2. Describe the configuration of various types of PV systems: PV direct, Stand-alone, PV/hybrid, Multimode, Zero-sell, Micro-grid, and Utility-scale energy storage.
3. Demonstrate the ability to select code compliant materials for a PV System fundamental (battery-based).
4. Identify and select the proper grounding and bonding equipment required for a PV system.
5. Design a stand-alone PV advanced system to be used in the calculations for PV array and sizing with MPPT and Non-MPPT charge controllers.
6. Demonstrate the procedures for commissioning and troubleshooting an Stand-alone PV system.