

Area: Multi-Disciplinary
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ENERGY 140 Electrical Applications for Solar Installers 4 Units

Prerequisite: ET 302 with a grade of "C" or better
Hours: 54 hours LEC; 54 hours LAB

This is an introductory course in Solar Photovoltaic (PV) energy. It covers how solar photovoltaic energy works and how to assess if PV is feasible in a variety of situations. Topics include calculating and measuring PV power outputs for different conditions, using software tools and hardware for calculating and sizing PV systems, and measuring and analyzing shading conditions. Additionally, it addresses how to install and connect necessary components. This is the first course in a series leading to the solar photovoltaic energy installers certification. Field trips are required.

ENERGY 141 Electrical & Mechanical Applications for Solar Installers 4 Units

Prerequisite: ENERGY 140 or 299 with a grade of "C" or better
Hours: 54 hours LEC; 54 hours LAB

This is an advanced course in Solar Photovoltaic (PV) energy. Topics include using hardware and software tools for shading and correctly orientating solar panels, the effect PV panel orientation has on system power output and efficiency, what effect optimum PV panel loading has on power produced, and how to perform load analysis on a specific residence. Additionally, it covers various manufacturers' software to calculate PV panel string sizing for optimum efficiency when working with grid tie inverters. National Electrical Code (NEC) and fire code wire sizing, fusing, and other safety instructions and procedures are stressed. The successful completion of this course and ENERGY 142 qualify students to take the NABCEP (North American Certified Energy Practitioner) certified solar photovoltaic installers and service technicians entry level certificate of knowledge of PV systems test. Field trips are required. This course may be taken two times for credit using different test equipment.

ENERGY 142 NABCEP (North American Board of Certified Energy Practitioners) Entry Level Test Review 2 Units

Prerequisite: ENERGY 140 with a grade of "C" or better
Corequisite: ENERGY 141
Hours: 36 hours LEC

This advanced course in solar photovoltaic (PV) energy offers preparation for the North American Board of Certified Energy Practitioners (NABCEP) PV Entry Level Certificate of Knowledge Exam. Topics include hardware and software tools used for determining percent of shade and orienting solar panels, the effect of PV panel orientation on system power and efficiency, and the load analysis. Additionally, it covers calculating PV panel string sizing when working with grid tie inverters as related to the NABCEP test. National Electrical Code (NEC) and fire code wire sizing, fusing, and other safety instructions and procedures are reviewed. The successful completion of this course and ENERGY 141 qualifies students to take the NABCEP certified solar photovoltaic installers and service technicians entry level certificate of knowledge of PV systems test. Field trips are required. This course may be taken two times for credit using different software.

ENERGY 303 Energy and Sustainability 3 Units

Same As: ET 303 and NATR 303
General Education: AA/AS Area IV (effective Summer 2009)
Course Transferable to CSU
Hours: 54 hours LEC

Fundamentals of energy and its impact on society and the environment are covered in this course. The mechanics, advantages and disadvantages of current and future renewable, green and nonrenewable energy sources are investigated. Residential energy audits are covered. Field trips are required. This course is not open to students who have completed ET 303 or NATR 303.