**SU Orange Academy - Spring 2021**

**Renewable & Alternative Energy Engineering:**

Mondays, 5PM - 6:30PM, Spring 2: 8-week: March 15 - May 6

This course details the evolution of humans on the planet, their ever changing energy demands, and subsequent impact on the environment. Students will learn about the physics of energy, relationships of force, work and power, and associated units – Newtons, Joules, and Watts.

Non-renewable energy versus renewable energy are examined, as well as the need to address greenhouse gases and consequent climate change. Alternative energy sources such as hydrogen fuel and nuclear fusion will be addressed.

Introductory lessons include:

1. Fundamental Units of Engineering
2. Intellectual Property
3. Engineering Ethics

Detailed sessions on Hydro, Solar, Geothermal and Wind systems will be presented.

**Typical Lecture**

The typical class involves lectures, demos and team building. Students will be problem solving in groups. When not in class, students will have homework, conduct additional assigned research/reading, and be expected to work on group projects.

**Common program components:**

1. Selected Readings and presentations by student pairs.
2. Teamwork practice.

**Course Objectives:**

1. All students will gain team building and presenting skills.
2. Graduates will be able to size, quote and locate a renewable energy system for their primary residence.
3. Graduates will be prepared to evaluate their hometown energy use and recommend to the town board a rough blueprint for a plan on 100% renewable energy.