

Course Outcomes AET-108 Wind Energy Installation

Course Title: AET-108 Wind Energy Installation

Course Instructor(s): Anthony Valente

Programs: Alternative Energy Technology

Expected Learning Outcomes

- Specify and install a typical wind energy system.
- Collect and evaluate data from a wind energy system.
- Start up a wind energy system.
- Maintain and trouble-shoot a wind energy system.
- Work safely and efficiently.
- Calculate basic electrical load.

Assessment

Assessments will include:

2 written tests and a final written exam

Classroom lab exercises and assignments

Validation

1. Comparison of final exam results with national average skills in the wind energy field of work.
2. The evaluation of student performance and ability to transfer knowledge to next level of class in the program.
3. Consult Advisory Committee participants as to performance of interns and hired students based on ability and knowledge gained.

Results

The results of the testing and final examination will show the level of retention of the classroom materials.

The results of the practice exercises and assignments will show the ability of the student to transfer textbook information to hands-on applications.

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The results of the Advisory Committee input will allow us to place a rate of success in our database for ongoing improvement to the course and advise us of changes in technology and industry standards.

Internships will measure the student outcomes in a real world environment through feedback from internship supervisor.

During the Fall 2015 semester it was noted that the average grade for students was 92% in this class. The class size was small the semester and therefore influenced the higher grade average due to more time spent per student on the subject matter. Wire numbering exercises were implemented the semester and troubleshooting via the numbering system was incorporated into the final testing. This is a universal skill that teaches the student efficient troubleshooting techniques. There are currently no internships available in this region for wind energy to be used as a measurement tool for student learning outcomes. Therefore classroom testing and hands-on exercises are currently the only measurement tool available.

Follow-up

The data will be evaluated to improve teaching techniques

The data will be evaluated to help us remain up to date with technology changes.

The NCCER wind turbine technician textbook currently being used is primarily to teach troubleshooting and maintenance techniques. Due to the lack of wind energy jobs in this region a focus is put on problem solving, root cause analysis, and proper maintenance techniques, which can be used in multiple industries. We are evaluating the possibility of reducing this course to a two credit course and free up one credit in the program for a BPI energy auditing course.

Budget Justification

Update textbook to include changes in technology

Update classroom equipment to keep pace with changes in technology

The HCC 5KW wind turbine installation was completed at the start of the semester and PowerPoint presentation as well as other pictures were used to teach students the complete process of site selection, wind turbine selection, site preparation, installation, and commissioning of the wind turbine.