

# REENERGIZE-4: Planning for the Assessment of Student Learning of Sustainability & Green Design Content

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College/University: Coastal Bend College, Beeville Texas  
Course: DFTG 2306-Machine Design Semester: Summer 1-2015/Spring 2016  
Expected Number of Sections: one/semester, Expected Number of Students: 10+/-

*Using the suggested teaching activities presented at the end of each of the training lectures, identify two activities that most interest you. Fill in the form below to show a plan that integrates these activities into your classroom. In addition, develop five assessment questions that will allow you to measure your students learning.*

## **Injecting Training Materials into the Classroom**

Objectives of Activity:

### **Design Project**

- To engage students in a design project so they can learn & experience the steps in the design process.
- Perform Brainstorming, Schematic design development, Preliminary Design Layout of proposed design.
- Select the best design and develop complete working drawings.

Description of Course Activity (i.e. Homework, Example, Quiz, Project, etc.):

### **Design Project- Solar Mount Mechanism; Wind Turbine Mounting Device**

- Design solar panel (PV) mounting mechanism for 4 solar panels to be mounted at CBC site. The panels will be mounted on the ground on vertical poles elevated 4' to 5' above ground.
- One mount will be fixed with a 13° angle while the other 3 mounts will have adjustable angle & rotational mechanisms.

### Student Deliverables:

1. Schematic design sketchers &/or CAD drawings of design ideas.
2. CAD preliminary design layout (propose one best design)
3. Working drawings (of best design)
4. Project design report(includes)
  - A. Design Statement
  - B. Cost Analysis & Project Design Comparative Analysis
  - C. Idea Sketches
  - D. Preliminary Design & site Layout
  - E. Working Drawings in CAD

### Implementation Plan:

We will implement this project in Summer I 2015, as we are offering DFTG 2406 Machine Design in this class, providing this class makes, or in next course offering in Spring 2016.

We will implement this project as a team project consisting of 3-4 students per team and will work on this as a class project, whereby the students will design and have the project built by the welding department. Then they will oversee the construction & installation of the completed project of solar panels and wind turbine.

### Student Assessment Questions:

1. Is it necessary to design your project to be cost effective? YES
2. What drives a good design of a new project? Solves a need, cost, and must be functional.
3. A full set of working drawings for a project includes what? Detailed drawings, assembly drawings, exploded isometric/3D
4. To perform a good design it is necessary to solve all of the considerations? Yes
5. When designing any new project not only is it beneficial to know about the details, but a designer must also know: Materials needed, measurements for size, and various other factors.