

**MAE 189: MAE Senior Design Project  
Renewable Energy  
General information**

**Coordinator:** Yun Wang

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**Class schedule:** Regular Meeting: \_\_\_\_\_ EG2123

**Course information:** This design project is one topic of renewable energy program. The project topic is flexible, varying from the basic designs of wind energy to efficiency analysis that can be managed by senior students. Students will work together on one comprehensive project for three continuous quarters. After this project, students will be able to:

- 1.) Understand the basic structure of targeted energy devices;
- 2.) Understand the fundamentals of targeted energy devices;
- 3.) Design/fabricate the basic components of targeted energy devices;
- 4.) Apply the learning in class to solve real engineering issues;
- 5.) Conduct literature review and write proposals;
- 6.) Prepare papers to UROP journals or others.

**Degree units:** Credit units: 1-2 (member); 3-4 (leader). Pass/No-pass only.

**Course website:**

**Grading policy:** In order to pass, the students must:  
1) be actively involved in the design project (including meetings).  
2) accomplish the project tasks in each quarter.

**Guidelines for the senior design project of Wind energy**

**Three** major tasks that are involved:

1.) Fall, literature review-> identify topics-> attend UROP workshops -> prepare proposals to UROP;

2.) Winter, design and fabricate a wind turbine as outlined in the proposal;

a. Develop a flexible steel-based holder;

b. Design/Develop a flexible gear box and compare with commercial gear box;

c. Design/Develop the flexible blades for testing.

\*The design must be flexible for future upgrade.

3.) Spring, experimental test and prepare for display; prepare for the presentation for UROP.