

## Engineering Lesson/Activity Unit

This is a **100-point project** that will cover an engineering field of current interest in the media (sustainability, alternative energy, engineering solutions to underdeveloped nations' problems). The final outcome of this project will be a unit that is centered on an engineering activity in one of these areas of engineering. You will have five submission dates with one final date to turn in your Engineering Classroom Activity Unit. For all five dates, you will receive points. Each submission date must be completed and turned in before you are able to complete the next one. Late papers will be accepted but no points will be allotted. Be sure to check that everything is error free and has correct grammar.

Students will be divided into teams of two or three. As a team, your unit must be cohesive and contain at least four lesson plans. Each team must choose hands-on engineering activities for use in their unit lesson plans. All activities must be approved and no two groups are allowed to choose the same project or activity. When choosing an activity, keep in mind that the activity must relate specifically to the engineering topic selected. Topics will be awarded on a first come, first serve basis. Topics must be chosen by Tuesday, September 15<sup>th</sup>. On this day, please turn in an outline of the topic for your unit (submission Unit 1 worth 5 points).

Each submission must be completed and turned in before you are able to complete the next one. Late papers will be accepted but no points will be allotted.

### **Unit 1: First submission date: Tuesday, September 15<sup>th</sup> (5 Points)**

Unit Overview- Needs to include:

1. Area of Engineering
2. Grade Level
3. Co-Curricular - 2 areas, how will you incorporate them?
4. Rationale - why did you choose this area, grade level, etc. and how will this unit benefit the students?

### **Unit 2: Second submission date: Thursday, September 24<sup>th</sup> (10 Points)**

Each team must submit a two -three page write up on the field of engineering selected. What are the important problems? What sorts of engineering solutions are being considered? Be sure to cite your sources, including people.

### **Unit 3: Third submission date: Thursday, October 8<sup>th</sup> (15 Points)**

Unit overview - Needs to include:

1. Overview for each lesson, including specific hands-on activities
2. Lesson Standards - ICC, including co-curricular areas
3. Lesson Objectives - be sure to include objectives that relate to all of your standards (2-3 per lesson)
4. Explanation of how you will assess student learning in each lesson
5. Bibliography

### **Unit 4: Fourth submission date: Thursday, November 19<sup>th</sup> (20 Points)**

Each team must submit a completed copy of a unit; including lesson plans (see submission Unit 5 for requirements). Constructive feedback will be provided in order to revise for the final turn in date.

**Unit 5: Final Date: Tuesday, December 8<sup>th</sup> (50 points)**

\*Must turn in two copies of your Final: one hard copy and one electronic copy

The **Final** must include the following components:

1. Cover page including each group member's first & last name and major, a Creative Title, and Grade Level
2. Table of Contents & Scope and Sequence of Unit
3. Rationale - why you chose this area, grade level, and how does this benefit the students in the classroom
4. Unit Objectives
5. Unit Standards - ICC
6. Unit Co-Curricular Standards - ICC
7. A minimum of four lesson plans, each with
  - a. Overview
  - b. Minimum of 3 Objectives
  - c. Materials
  - d. Anticipatory Set
  - e. Procedure Steps in detail
  - f. Closure
  - g. Student Assessment
8. Unit Learning Assessment Plan
9. Resources for Unit
10. Co-Curricular - 2 areas descriptions
11. Write up of field of engineering chosen (submission Unit 2)
12. Annotated Bibliography
13. Presentation including separate sections with cover pages or tabs