Sophomore Clinic I
A. Brown

Wiki Assignments (team written)

Work on these in class with your team, jotting down notes for each one. Later in the class period, we will go down to the computer lab and begin entering information in the rocket project wikis. These assignments are due by the next lab period. Be sure to review Dr. Riddell's presentation notes as you work on this (posted on the wiki).

Lessons Learned from Day 1

Each team member should describe what your team did--how your team developed and tested its ideas, what your results were, and what you learned that could be applicable to the next phase of the project. Summarize the key points you learned from Dr. Riddell about what influences rocket performance.

Food for Thought Questions

1. When developing a parametric model, a designer is likely to purposely introduce constraints-thereby limiting the design instances that are available. Why would a designer do this?
2. What other things might introduce constraints into a design?
3. What are the advantages of using only a single parameter to define a family of fins for your rocket?
4. What are the disadvantages of using only a single parameter to define a family of fins for your rocket?
5. What happens if you design the family of fins using a parameter that does not have a strong effect on the performance of your rocket?
6. What happens if you design the family of fins in a way that does not admit any specific instances that are effective?
7. How should you approach the development of your parametric model so as to avoid these issues?

Preliminary Parametric Models

Sketch at least three possible fin families to consider. Remember that each family must be defined by a single parameter. For each possible model, explain what the parameter is and show in a sketch how you would vary it.

Parametric Model and Description of Rocket

With your team, define the parametric model of the rocket you will optimize over the next three weeks. In a written description, provide the following:

- A summary of the parameters you are optimizing, including the constraints that have been placed on your design
- A description of the rocket, including materials, components, and methods of attachment
- An explanation of your testing strategy (how you will conduct testing of the three parameters in order to optimize the rocket's performance)

Include and refer to at least two figures:

- A schematic diagram of the rocket showing its components
- A diagram depicting the family of fins/wings that you are testing

I recommend that you post your parametric model and description in your wiki or show it to the engineering faculty **before** the lab period when you will begin work on optimizing your rocket. This will allow you to make the best possible use of lab time for varying and testing parameters.