

### **Project Deliverable 1: Problem Definition**

It is very important that you understand the design problem you are solving, the requirements/constraints and your objectives. Defining the problem is often the most important step in a design process. For this project deliverable, you will identify all the requirements/constraints of this design project; identify your objectives; write up a problem definition statement; and create a prioritized list of criteria for success.

#### **Project Requirements and Problem Definition**

Carefully read the project document as an individual. Pay attention to the requirements of this project. Individually list all the design requirements and constraints in bullet points. As a team, identify the goals/objectives of this design project and compare and combine your lists of requirements. When you consider and discuss the constraints, also think about the construction tools (e.g., hand saw, drills, etc.) and construction materials that are available to the team members. Then discuss and write down a problem definition statement of this design project. The problem definition statement should clearly identify the underlying problem that needs to be solved and summarize the important constraints. Be as specific as possible but try to avoid statements that lead to a particular solution. As a team, create a list of all the project requirements. Be specific and quantitative. Discuss and list criteria for a good design and prioritize the criteria. As a team you should also generate three different instrument ideas for “high”, “medium”, and “low” range (so 9 instrument ideas total). Each of these designs should be viable and unique solutions to the problem (solve the problem, meet all of the design requirements, etc.). For each conceptual design you should describe the form, function (a description of how it works), and finish (what materials...as best as possible at this point).

#### **Deliverables:**

This project deliverable should be turned in as a **TEAM** (one submission per team). **One person** per team should submit a PDF or Word document **to the course shell assignment by the due date specified**. Follow the format described below.

- Your deliverable should **be typed** (single spaced) in paragraph form, with appropriately formatted section headings (use bold and/or underline, and/or larger font size). You should use consistent spacing, formatting, font, and style, as well as correct grammar and spelling.
- You should include your team number and all team member names in the top right corner of your deliverable (Note, if your name is on the document it means that you helped create the document, understand everything in the document, and stand by ALL the work presented in the document).
- A title ‘Problem Definition’ should be included at the top.

Make sure to include the following in your document:

- All requirements and constraints in bullet points
- Problem definition statement
- Prioritized criteria with assigned weights
- Description of your 9 instrument ideas
  - 3 for “high” range
  - 3 for “medium” range
  - 3 for “low” range