PHASE 2 ~ CONCEPTUAL DESIGN
Deliverable 6 ~ Project Plan

INSTRUCTIONS. Write a project plan for your design project. Your plan is due electronically and you should add it to your design history file as well. Your document should have the filename convention Team-*yournumber*_del6_project_plan.

Purpose
Project planning is a series of flexible and iterative steps through which you identify where you want to go and a reasonable way to get there, with specifics of who will do what and when.

Format of the Project Plan
The project plan should include the following sections:

1. TITLE PAGE
   - PROJECT PLAN FOR THE (insert name of project) AND (insert names of stakeholders and their affiliations)
   - The organization responsible for preparing the document
   - Revision version and date issued

2. STATEMENT OF WORK. This section clearly explains what the project is (*feel free to leverage your design history file contents and revise as necessary*).
   a. Purpose
      - *Background.* Why was the project initiated and by whom, what happens if it's not done, and what else relates to it?
      - *Scope of work*. What will you do (a brief statement describing the major work to be performed)?
      - *Strategy*. How will you perform the work, who will do it, and what funds are available for the work?
   b. Objectives. The end results achieved by the project.
      - *Statement*. A description of the desired outcome when the project is completed.
      - *Measures*. Indicators to assess how well you have achieved the desired outcome.
      - *Specifications*. Target values of the measures that define successful results.
   c. Constraints. The restrictions on the project.
      - *Limitations*. Constraints set by others (such as limited funds, or other responsibilities that will limit your research time).
      - *Needs*. Constraints set by the project team (such as wanting to complete a project three weeks early because one of the key people will be on vacation).
   d. Assumptions. The unknowns you posit in developing the plan—statements about *uncertain information* you will take as fact as you

conceive, plan, and perform the project (e.g., identified collaborators will be willing and able to work with our group).

3. THE AUDIENCE. This section contains the people and groups (within the institution and outside) that have an interest in your project, are affected by it, or are needed to support it. *If their needs are not considered, the project will fail.* This written list serves as a reminder throughout the project to touch base with these stakeholders as you proceed.
   a. *Drivers*. People who tell you what to do, defining to some degree what your project will produce and what constitutes success. If possible, keep these people abreast of how the project is going or consult with them before changing direction.
   b. *Supporters*. People who will perform the work or make the work possible (e.g., students in the class or program director for the organization funding the project).
   c. *Observers*. People who have an interest in your project but are neither drivers nor supporters. They are interested in what you're doing, but they're not telling you what to do or how to do it (e.g., other scientists working in your field, mentors, and potential supporters).

4. WORK BREAKDOWN STRUCTURE (WBS). This section is the *heart of the document*. The WBS is an outline of all the work that will have to be performed for your project.

   It contains the following:

   - Broad work assignments: *your team-identified steps of the design process*. For example:
     o Understand stakeholder needs
     o Define the system functions and requirements
     o Generate design concepts, including models or roughs
     o Evaluate alternative solutions
     o Select among alternatives
     o Develop preliminary design
     o Prepare a model or prototype
     o Test and evaluate the design
     o Improve the design
     o Build final device
     o Communicate the design
   - Each broad work assignment above is broken down into several activities, and further divided into discrete steps culminating with a closing event, as in the following outline
     o Project activity *#*: *a task that must be performed for your project*
     o Discrete steps for activity *#*
     o Closing event *#*: *a milestone marking the completion of the activity*

When you develop a WBS, think in one- to two-week increments. This outline will help you schedule the project and its parts later on, estimate resources, assign tasks and responsibilities, and control the project.

To decide whether a particular part of the project is detailed enough, ask yourself three questions, based on your WBS:

- Can you determine a reasonable estimate of the resources (including people) required for this work?
- Can you determine a reasonable estimate of the time required to do this work?
- Can anyone charged with one of these activities understand it well enough to do it to your satisfaction?