Design Review #1 Recommended Guidelines

Special Note

Be creative! Think outside of your box!

You are allowed to change the recommended guidelines if the change can help Judge Panel better understand your presentation and you believe you are on the right track in terms of meeting sponsors/instructors' expectation.

General Objectives

- Determine the level of understanding of the design problem and needs.
- Consider necessary standards, public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
- Document progress to date and the relevant available literature.
- Establish customer requirements and engineering specifications.
- Evaluate the basic project plan.

Requirements

- Oral presentation.
- Written report.

Oral Presentation

This is a presentation of the major points of the written report (See below). The teams are expected to present the needs and an overall understanding of their projects. A team could anticipate what would be delivered for the Design Expo. Present the customer requirements as you understand them and relevant benchmarks. Engineering specifications should be established using the QFD method. The specifications should be solution neutral (e.g. the specifications don't suggest a particular solution). The team is also welcome to demonstrate some initial conceptual ideas. Describe any difficulties that you foresee in achieving your goals.

The oral presentation will be confined to **10 minutes**, **including 7 minutes for your presentation, 2 minutes for Q&A, and 1 minute for transition/preparation**. 10 minutes will only be enough time if you are prepared, so be sure to have organized the presentation and rehearsed it in advance.

The team will be graded as a whole. Everyone should present in each design review and the presentation load needs to be distributed evenly.

It is suggested to have the following for the Design Review #1

- Project Title and Sponsor
- Team Roles and Individual Introductions
- Review of Design Problem
- Literature Search and Benchmarking
- Quantification of Design Specifications
- Consideration of specific standards, public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors

- Project Schedule
- Q&A

Written Report

The instructors recognize that all projects are not the same, which may impact how the design process is applied. However, you should apply most of the design process that were discussed in class to the degree that it makes sense. *The written design report for DR#1 should incorporate the comments from the Judge Panel. Contents related to reviewers' comments should be clearly marked.*

Below is a suggested general format that will work with most projects for this semester. The goal here is to write a clear, concise, and informative design review, not to follow a set format. However, most of the elements should be included.

- Title Page
  - Please include the title of the project, sponsor name and affiliation, student names and contact information, and one or two key pictures/figures that represent the project.
- Revised Abstract
  - This is a one page (or less) summary of the design problem, specifications, problem analysis, project plan, as well as the project outcome and motivation. It should provide key details and conclusions concisely.
- Problem Description & Introduction
  - Describe the background of the project or design problem. What is the expected outcome?
  - Please provide complete review of the competitive and related products and technologies to demonstrate the novelty of your design. You may also quote source of information that is beyond web-searching.
- Information Sources
  - When citing the resources from outside, be sure to include the information that you have gathered, the technical benchmarks, and the source of your information.
  - **(Important) National standards, Industrial standards, Association standards, etc.**
- Customer Requirements and Engineering Specifications
  - Describe customer requirements and how you translated them into "quantified" engineering specifications in detail (focus on the process to determine the engineering targets).
  - You should include a QFD, and discuss how the QFD was developed and the meaning of it. In case you are dealing with software algorithm rather than a physical prototype, you may consider specifications such as test cases, program efficiency, complexity, reliability etc. if necessary.
  - Make a separate table listing your specific engineering requirements (even if they are included in the QFD). Your design expo prototype will be graded against this table.
  - If the project topic is too broad, feel free to add subtitles or specifications to help audience understand what technical functionalities you are trying to achieve exactly.
- Project Plan
  - You should consider: the milestones for your project, their priorities, each team member's work load as well as the budget etc. Summarize the project plan in a figure such as a Gantt chart or something similar.
- Conclusions
  - Summarize the important parts of the earlier sections.
- References
  - Give a complete reference list for all information sources used. Be sure to cite credible references.
- Bios

- Each team member is required to provide a half page biographical sketch that includes his/her future plans. Interesting facts are always fun to include. Include a picture of you to help the instructor to remember your face for the rest of the term.

Keys to a Great Design Review

- Think about your audience. Use visual aids if necessary to help audience understand.
- Organize your reports logically and be concise. The ability of expressing ideas clearly will also be graded.
- Failure is part of the process, so do not gloss problems over. Be technical and quantitative.
- Do not be defensive or abrasive. Professionalism is observed and contributes to your participation grade.